

*Right for today,  
ready for tomorrow*

# IBM Personal Systems

**IBM**

Reference  
Guide

November 1988

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### Fifth Edition (November 1988)

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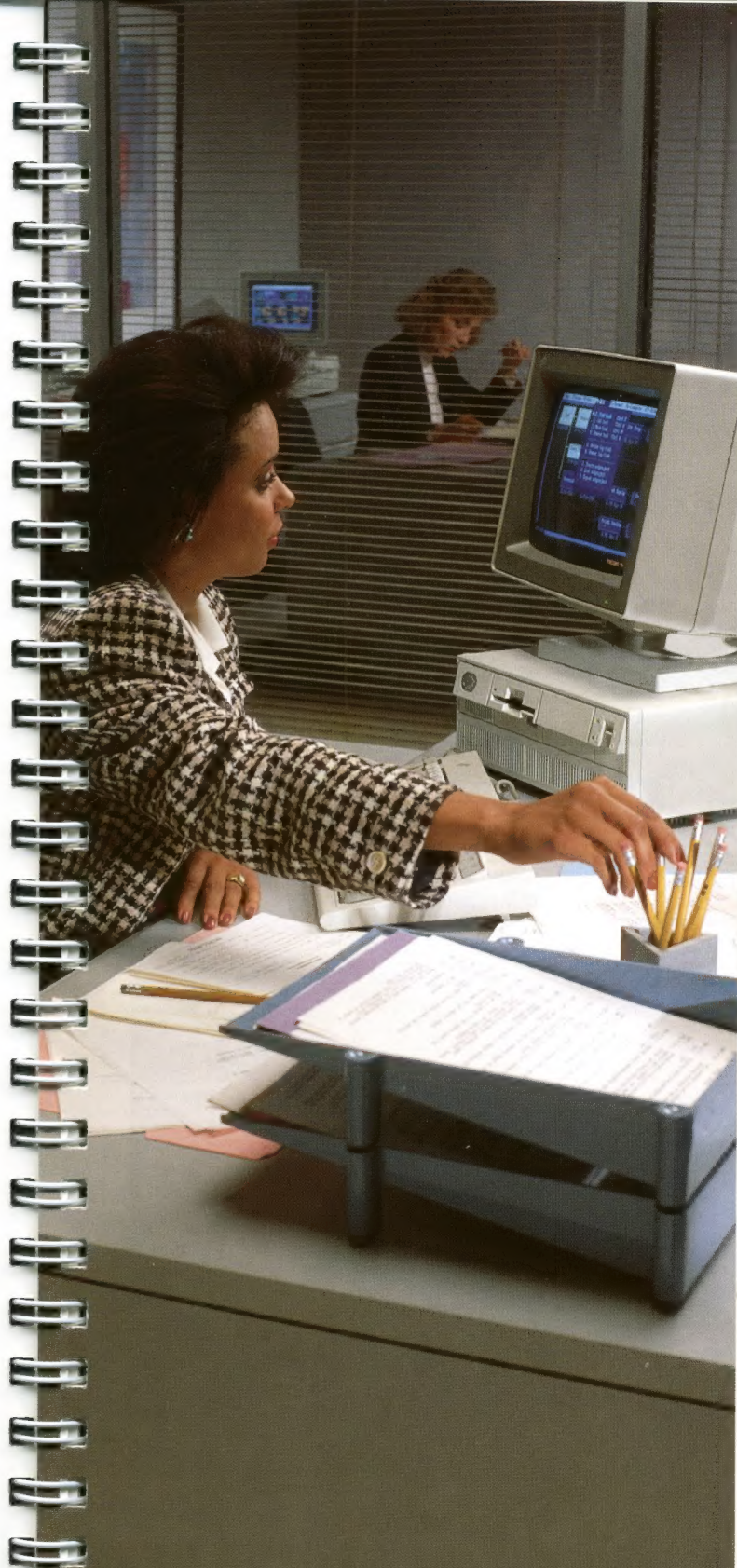
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## Key highlights

### Advanced technology

- Fewer components (VLSI/SMT)
- Micro Channel™ architecture
- Wide range of processors
- Data storage
- Analog displays

### Price/performance

- Balanced performance—PS/2® processors, memory, storage capacity, multitasking
- Integrated features included in unit price
- Low maintenance costs
- PS/2 quality and reliability, which equals affordability

### Graphics

- Integrated display chip
- Functionally superior analog displays

### Operating systems

- IBM Operating System/2™
- DOS Versions 3.3 and 4.0
- AIX™ Personal System/2®

### Communications

- Broad range of connectivity
- OS/2™ Extended Edition integrated functions
- Active participant in network management

### Quality/reliability

- Driven by technology
- Foundation for enhanced data integrity
- Ergonomically designed for usability and serviceability
- Low maintenance costs

### Growth/compatibility

- Personal System/2: platform for system growth
- Increased capabilities and usability
- Systems Application Architecture (SAA)

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# Personal System/2

## Highlights

The Personal System/2 family includes six desktop models and two floorstanding models that offer a wide range of solutions to meet your needs most anywhere.

PS/2 Models 25, 30 and 30 286 provide high levels of price/performance based on the traditional IBM PC architecture. Models 50 and 50 Z, 60, 70 386 and 80 386 incorporate Micro Channel architecture, which offers faster, more efficient data flow and more direct memory access than earlier IBM PCs. All PS/2 models come with a wealth of built-in functions—many functions that once required adapter cards are now integrated into the system board. And the new PS/2 Model 30 286 can use many of the same feature cards and adapters used with IBM Personal Computer ATs®

Easy coexistence of the Personal System/2 and IBM Personal Computer families also extends to files and applications. Personal System/2 uses high-capacity 3.5-inch diskettes—yet you can still use files and most applications stored on 5.25-inch diskettes. Several media conversion options are available to provide easy migration of data and programs\* between PS/2s and IBM PCs.

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\*Before copying any software product, be sure to read, understand and comply with the specific license agreement and installation instructions for that product.

<b>Machine numbers</b>	<i>IBM Space Saving Keyboard</i> <ul style="list-style-type: none"><li>• 8525-001 (monochrome), -004 (color)</li></ul> <i>IBM PS/2 Enhanced Keyboard</i> <ul style="list-style-type: none"><li>• 8525-G01 (monochrome), -G04 (color)</li><li>• 8525-L01 (LAN Station monochrome), -L04 (LAN Station color)*</li></ul>
<b>Processor</b>	<ul style="list-style-type: none"><li>• 8086, 8 MHz</li><li>• 8087 Math Co-Processor, 8 MHz (optional)</li></ul>
<b>Wait states</b>	0
<b>Memory (RAM)</b>	<i>Models 25-001, -004, -G01, -G04</i> 512Kb on the system board, expandable to 640Kb  <i>Models 25-L01, -L04</i> 640Kb on the system board
<b>Storage</b>	<ul style="list-style-type: none"><li>• One 720Kb 3.5-inch diskette drive</li></ul> <i>Optional</i> <ul style="list-style-type: none"><li>• Second 720Kb 3.5-inch diskette drive</li><li>• 20Mb fixed disk drive</li><li>• IBM 5.25" External Diskette Drive 4869-001</li><li>• IBM 3363 Optical Disk Drive (external)</li></ul>
<b>Display</b>	<i>Models 25-001, -G01, -L01</i> 12" (diagonal measurement) analog monochrome display  <i>Models 25-004, -G04, -L04</i> 12" (diagonal measurement) analog color display  <i>*Available through IBM Authorized Dealers only.</i>

<b>Graphics</b>	<i>MultiColor Graphics Array (MCGA)</i> <ul style="list-style-type: none"><li>• 8 x 16 character box</li><li>• 640 x 480 pels x 2 colors from a palette of more than 256,000</li><li>• 320 x 200 pels x 256 colors from a palette of more than 256,000</li><li>• 64Kb video RAM</li><li>• Analog display interface</li><li>• CGA compatibility</li></ul>
<b>Integrated functions</b>	<ul style="list-style-type: none"><li>• Serial (up to 9.6Kbps—25-pin male)</li><li>• Parallel (bidirectional—25-pin female)</li><li>• Pointing device (for example, mouse—6-pin module)</li><li>• Keyboard (6-pin module)</li><li>• Audio earphone connector</li><li>• Diskette controller</li></ul>
<b>Expansion</b>	<ul style="list-style-type: none"><li>• One full-size expansion slot (except -L01, -L04)</li><li>• One 8-inch expansion slot</li></ul>
<b>Options</b>	See page 89 <i>(continued on page 10)</i>





## Personal System/2 Model 25

(continued)

**Size** Height—15.38", Width—12.63", Depth—14.88", Weight—31 lbs. (monochrome unit), 36 lbs. (color unit); Space Saving Keyboard Width—15.86", Depth—7.5", Weight—4.28 lbs.

**Power supply** 90-watt (Models 25-001, -G01, -L01) or 115-watt (Models 25-004, -G04, -L04) world-wide;\*\* manual voltage selection, 90-137 VAC or 180-259 VAC; 50-60 Hz

**LAN Station** *Models 8525-L01 and -L04 include:*

- IBM Token-Ring Network PC Adapter installed in the full-size slot
- IBM Token-Ring Network PC Adapter Diskette

*\*\*Supplies power to both system and display.*

## Personal System/2 Model 30

**Machine numbers** 8530-002, -021

**Processor**

- 8086, 8 MHz
- 8087 Math Co-Processor, 8 MHz (optional)

**Wait states** 0

**Memory (RAM)** 640Kb on the system board

**Storage** *Model 30-002*

- Two 720Kb 3.5-inch diskette drives

*Model 30-021*

- One 720Kb 3.5-inch diskette drive
- One 20Mb fixed disk

*Optional*

- IBM 3363 Optical Disk Drive (external)
- IBM 6157 Streaming Tape Drive
- IBM 5.25" External Diskette Drive 4869-001

(continued on page 12)



## Personal System/2 Model 30

(continued)

<b>Graphics</b>	<b>MultiColor Graphics Array (MCGA)</b> <ul style="list-style-type: none"><li>• 8 x 16 character box</li><li>• 640 x 480 pels x 2 colors from a palette of more than 256,000</li><li>• 320 x 200 pels x 256 colors from a palette of more than 256,000</li><li>• 64Kb video RAM</li><li>• Analog display interface</li><li>• CGA compatibility</li></ul>
<b>Integrated functions</b>	<ul style="list-style-type: none"><li>• Serial (up to 9.6Kbps—25-pin male)</li><li>• Parallel (bidirectional—25-pin female)</li><li>• Pointing device (for example, mouse—6-pin module)</li><li>• Keyboard (6-pin module)</li><li>• Display (15-pin module)</li><li>• Diskette controller</li><li>• Disk controller (-021 only)</li><li>• Clock/calendar</li></ul>
<b>Expansion</b>	Three 8-bit expansion slots (which accept existing IBM PC cards)
<b>Options</b>	See page 89
<b>Size</b>	Height—4", Width—16", Depth—15.6", Weight—17.5 lbs. (Model 30-002)
<b>Power supply</b>	70-watt worldwide; autosensing and autoswitching, 100-125 VAC or 200-240 VAC; 50 or 60 Hz

## Personal System/2 Model 30 286

<b>Machine number</b>	8530-E01, -E21
<b>Processor</b>	<ul style="list-style-type: none"><li>• 80286, 10 MHz</li><li>• 80287 Math Co-Processor, 10 MHz (optional)</li></ul>
<b>Wait states</b>	1
<b>Memory (RAM)</b>	<ul style="list-style-type: none"><li>• 0.5Mb on the system board, expandable to 4Mb</li><li>• Expandable to 16Mb (total system memory) via adapter cards</li></ul>
<b>Storage</b>	<b>Model 30-E01*</b> <ul style="list-style-type: none"><li>• One 1.44Mb 3.5-inch diskette drive</li></ul> <b>Model 30-E21</b> <ul style="list-style-type: none"><li>• One 1.44Mb 3.5-inch diskette drive</li><li>• One 20Mb fixed disk</li></ul> <b>Optional</b> <ul style="list-style-type: none"><li>• IBM 20Mb fixed disk (-E01)</li><li>• IBM 3363 Optical Disk Drive (external)</li><li>• IBM 6157 Streaming Tape Drive</li><li>• IBM 5.25" External Diskette Drive 4869-001</li></ul>

(continued on page 14)





## Personal System/2 Model 30 286

(continued)

<b>Graphics</b>	<b>Video Graphics Array (VGA)</b> <ul style="list-style-type: none"><li>• 9 x 16 character box (720 x 400 text mode)</li><li>• 640 x 480 pels x 16 colors from a palette of more than 256,000</li><li>• 256Kb video RAM</li><li>• Analog display interface</li><li>• CGA, EGA and MCGA compatibility</li></ul>
<b>Integrated functions</b>	<ul style="list-style-type: none"><li>• Serial (up to 19.2Kbps—25-pin male)</li><li>• Parallel (bidirectional—25-pin female)</li><li>• Pointing device (for example, mouse—6-pin module)</li><li>• Keyboard (6-pin module)</li><li>• Display (15-pin module)</li><li>• Diskette controller</li><li>• Disk controller</li><li>• Clock/calendar</li></ul>
<b>Expansion</b>	Three 16-bit expansion slots
<b>Options</b>	See page 89
<b>Size</b>	Height—4", Width—16", Depth—15.6", Weight—19 lbs.
<b>Power supply</b>	90-watt worldwide; manual switching, 90-137 VAC or 180-265 VAC; 50 or 60 Hz

\* Available through IBM Authorized Dealers only.

## Personal System/2 Models 50 and 50 Z

<b>Machine numbers</b>	Model 50: 8550-021 Model 50 Z: 8550-031, -061
<b>Processor</b>	<ul style="list-style-type: none"><li>• 80286, 10 MHz</li><li>• 80287 Math Co-Processor, 10 MHz (optional)</li></ul>
<b>Wait states</b>	1 (-021) 0 (-031, -061)
<b>Memory (RAM)</b>	<b>Model 50-021</b> <ul style="list-style-type: none"><li>• 1Mb on the system board</li><li>• Expandable to 16Mb (total system memory) via adapter cards</li></ul> <b>Models 50-031, -061</b> <ul style="list-style-type: none"><li>• 1Mb on the system board, expandable to 2Mb</li><li>• Expandable to 16Mb (total system memory) via adapter cards</li></ul>

(continued on page 16)



Model 50 Z

## Personal System/2 Models 50 and 50 Z

(continued)

### Storage

#### *Model 50-021*

- One 1.44Mb 3.5-inch diskette drive
- One 20Mb fixed disk

#### *Model 50-031*

- One 1.44Mb 3.5-inch diskette drive
- One 30Mb fixed disk

#### *Model 50-061*

- One 1.44Mb 3.5-inch diskette drive
- One 60Mb fixed disk

#### *Optional*

- Second 1.44Mb 3.5-inch diskette drive
- 60Mb fixed disk (-021, -031)
- IBM 3363 Optical Disk Drive (external)
- IBM 6157 Streaming Tape Drive
- IBM PS/2 Internal Tape Backup Unit
- IBM 5.25" External Diskette Drive 4869-001, -002

### Graphics

#### *Video Graphics Array (VGA)*

- 9 x 16 character box (720 x 400 text mode)
- 640 x 480 pels x 16 colors from a palette of more than 256,000
- 320 x 200 pels x 256 colors from a palette of more than 256,000
- 256Kb video RAM
- Analog display interface
- CGA, EGA and MCGA compatibility

### Integrated functions

- Serial (up to 19.2Kbps—25-pin male)
- Parallel (bidirectional—25-pin female)
- Pointing device (for example, mouse—6-pin module)
- Keyboard (6-pin module)
- Display (15-pin module)
- Diskette controller
- Disk controller: ST-506 (-021, -031), Enhanced Small Device Interface (ESDI) (-061)
- Clock/calendar

### Expansion

#### *Three expansion slots*

- Two 16-bit expansion slots
- One 16-bit slot with video extension

### Options

See page 89

### Size

Height—5.5", Width—14.2",  
Depth—16.5", Weight—21 lbs.

### Power supply

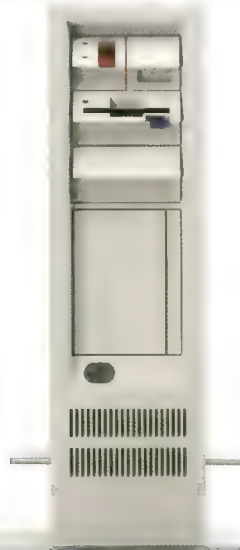
94-watt worldwide; autosensing and autoswitching, 90-137 VAC or 180-265 VAC; 50 or 60 Hz



Model 50



<b>Machine numbers</b>	8560-041, -071
<b>Processor</b>	<ul style="list-style-type: none"> <li>• 80286, 10 MHz</li> <li>• 80287 Math Co-Processor, 10 MHz (optional)</li> </ul>
<b>Wait states</b>	1
<b>Memory (RAM)</b>	<ul style="list-style-type: none"> <li>• 1Mb on the system board</li> <li>• Expandable to 16Mb (total system memory) via adapter cards</li> </ul>



<b>Storage</b>	<p><i>Model 60-041</i></p> <ul style="list-style-type: none"> <li>• One 1.44Mb 3.5-inch diskette drive</li> <li>• One 44Mb fixed disk</li> </ul> <p><i>Model 60-071</i></p> <ul style="list-style-type: none"> <li>• One 1.44Mb 3.5-inch diskette drive</li> <li>• One 70Mb fixed disk</li> </ul> <p><i>Optional</i></p> <ul style="list-style-type: none"> <li>• Second 1.44Mb 3.5-inch diskette drive</li> <li>• Second fixed disk: 44Mb (-041 only), 70Mb or 115Mb (-071 only)</li> <li>• IBM 3363 Optical Disk Drive (internal or external)</li> <li>• IBM 6157 Streaming Tape Drive</li> <li>• IBM PS/2 Internal Tape Backup Unit</li> <li>• IBM 5.25" External Diskette Drive 4869-001, -002</li> <li>• IBM 5.25" Internal Diskette Drive Feature</li> </ul>
<b>Graphics</b>	<p><i>Video Graphics Array (VGA)</i></p> <ul style="list-style-type: none"> <li>• 9 x 16 character box (720 x 400 text mode)</li> <li>• 640 x 480 pels x 16 colors from a palette of more than 256,000</li> <li>• 320 x 200 pels x 256 colors from a palette of more than 256,000</li> <li>• 256Kb video RAM</li> <li>• Analog display interface</li> <li>• CGA, EGA and MCGA compatibility</li> </ul>
<b>Integrated functions</b>	<ul style="list-style-type: none"> <li>• Serial (up to 19.2Kbps—25-pin male)</li> <li>• Parallel (bidirectional—25-pin female)</li> <li>• Pointing device (for example, mouse—6-pin module)</li> <li>• Keyboard (6-pin module)</li> <li>• Display (15-pin module)</li> <li>• Diskette controller</li> <li>• Disk controller: ST-506 (-041), Enhanced Small Device Interface (ESDI) (-071)</li> <li>• Clock/calendar</li> </ul>
<b>Expansion</b>	Seven 16-bit expansion slots
<b>Options</b>	See page 89
<b>Size</b>	Height—23.5", Width—6.5", Depth—19", Weight—47 lbs.
<b>Power supply</b>	207-watt (-041) or 225-watt (-071) world-wide; autosensing and autoswitching, 90-137 VAC or 180-265 VAC; 50 or 60 Hz

<b>Machine numbers</b>	8570-E61, -121, -A21
<b>Processor</b>	<p><i>Model 70-E61</i></p> <ul style="list-style-type: none"> <li>• 80386, 16 MHz</li> <li>• 80387 Math Co-Processor, 16 MHz (optional)</li> </ul> <p><i>Model 70-121</i></p> <ul style="list-style-type: none"> <li>• 80386, 20 MHz</li> <li>• 80387 Math Co-Processor, 20 MHz (optional)</li> </ul> <p><i>Model 70-A21</i></p> <ul style="list-style-type: none"> <li>• 80386, 25 MHz</li> <li>• 80387 Math Co-Processor, 25 MHz (optional)</li> </ul>
<b>Wait states</b>	0-2*
<b>Memory (RAM)</b>	<p><i>Model 70-E61</i></p> <ul style="list-style-type: none"> <li>• 1Mb on the system board,** expandable to 6Mb</li> <li>• Expandable to 16Mb (total system memory) via adapter cards</li> </ul> <p><i>Model 70-121</i></p> <ul style="list-style-type: none"> <li>• 2Mb on the system board,** expandable to 6Mb</li> <li>• Expandable to 16Mb (total system memory) via adapter cards</li> </ul> <p><i>Model 70-A21</i></p> <ul style="list-style-type: none"> <li>• 2Mb on the system board,** expandable to 8Mb</li> <li>• Expandable to 16Mb (total system memory) via adapter cards</li> <li>• Hardware memory cache: 64Kb</li> </ul>

\*Except -A21 with 64Kb of memory cache.

\*\*128Kb of this memory is required for hardware system use.

<b>Storage</b>	<p><i>Model 70-E61</i></p> <ul style="list-style-type: none"> <li>• One 1.44Mb 3.5-inch diskette drive</li> <li>• One 60Mb fixed disk</li> </ul> <p><i>Model 70-121, -A21</i></p> <ul style="list-style-type: none"> <li>• One 1.44Mb 3.5-inch diskette drive</li> <li>• One 120Mb fixed disk</li> </ul> <p><i>Optional</i></p> <ul style="list-style-type: none"> <li>• Second 1.44Mb 3.5-inch diskette drive</li> <li>• IBM 3363 Optical Disk Drive (external)</li> <li>• IBM 6157 Streaming Tape Drive</li> <li>• IBM PS/2 Internal Tape Backup Unit</li> <li>• IBM 5.25" External Diskette Drive 4869-001, -002</li> </ul>
<b>Graphics</b>	<p><i>Video Graphics Array (VGA)</i></p> <ul style="list-style-type: none"> <li>• 9 x 16 character box (720 x 400 text mode)</li> <li>• 640 x 480 pels x 16 colors from a palette of more than 256,000</li> <li>• 320 x 200 pels x 256 colors from a palette of more than 256,000</li> <li>• 256Kb video RAM</li> <li>• Analog display interface</li> <li>• CGA, EGA and MCGA compatibility</li> </ul>

(continued on page 22)





## Personal System/2 Model 70 386

(continued)

### Integrated functions

- Serial (up to 19.2Kbps—25-pin male)
- Parallel (bidirectional—25-pin female)
- Pointing device (for example, mouse—6-pin module)
- Keyboard (6-pin module)
- Display (15-pin module)
- Diskette controller
- Disk controller: Enhanced Small Device Interface (ESDI)
- Clock/calendar

### Expansion

#### *Three expansion slots*

- Two 32-bit expansion slots
- One 16-bit slot with video extension

### Options

See page 89

### Size

Height—5.5", Width—14.2",  
Depth—16.5", Weight—21 lbs.

### Power supply

132-watt worldwide; autosensing and autoswitching, 100-125 VAC or 200-240 VAC; 50 or 60 Hz

## Personal System/2 Model 80 386

### Machine numbers

8580-041, -071, -111, -311

### Processor

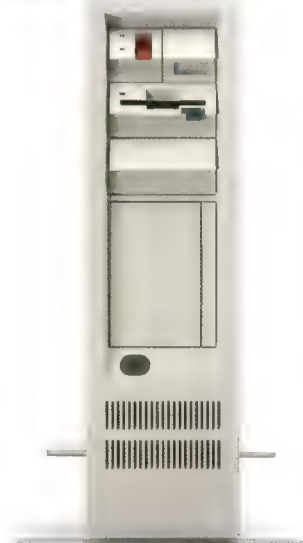
#### *Models 80-041, -071*

- 80386, 16 MHz
- 80387 Math Co-Processor, 16 MHz (optional)

#### *Models 80-111, -311*

- 80386, 20 MHz
- 80387 Math Co-Processor, 20 MHz (optional)

(continued on page 24)



**Wait states** 1 (80-041, -071) or 0-2 (80-111, -311)

**Memory (RAM)** *Model 80-041*

- 1Mb on the system board, expandable to 2Mb
- Expandable to 16Mb (total system memory) via adapter cards

*Models 80-071, -111, -311*

- 2Mb on the system board, expandable to 4Mb (-111, -311\*)
- Expandable to 16Mb (total system memory) via adapter cards

**Storage** *Model 80-041*

- One 1.44Mb 3.5-inch diskette drive
- One 44Mb fixed disk

*Model 80-071*

- One 1.44Mb 3.5-inch diskette drive
- One 70Mb fixed disk

*Model 80-111*

- One 1.44Mb 3.5-inch diskette drive
- One 115Mb fixed disk

*Model 80-311*

- One 1.44Mb 3.5-inch diskette drive
- One 314Mb fixed disk

*Optional*

- Second 1.44Mb 3.5-inch diskette drive
- Second fixed disk: 44Mb (-041 only), 70Mb, 115Mb or 314Mb (-071, -111, -311 only)
- IBM 3363 Optical Disk Drive (internal or external)
- IBM 6157 Streaming Tape Drive
- IBM PS/2 Internal Tape Backup Unit
- IBM 5.25" External Diskette Drive 4869-001, -002
- IBM 5.25" Internal Diskette Drive Feature

\*128Kb of this memory is required for hardware system use.

**Graphics**

*Video Graphics Array (VGA)*

- 9 x 16 character box (720 x 400 text mode)
- 640 x 480 pels x 16 colors from a palette of more than 256,000
- 320 x 200 pels x 256 colors from a palette of more than 256,000
- 256Kb video RAM
- Analog display interface
- EGA, CGA and MCGA compatibility

**Integrated functions**

- Serial (up to 19.2Kbps—25-pin male)
- Parallel (bidirectional—25-pin female)
- Pointing device (for example, mouse—6-pin module)
- Keyboard (6-pin module)
- Display (15-pin module)
- Diskette controller
- Disk controller: ST-506 (-041), Enhanced Small Device Interface (ESDI) (-071, -111, -311)

**Expansion**

*Seven expansion slots*

- Four 16-bit expansion slots
- Three 16/32-bit expansion slots

**Options**

See page 89

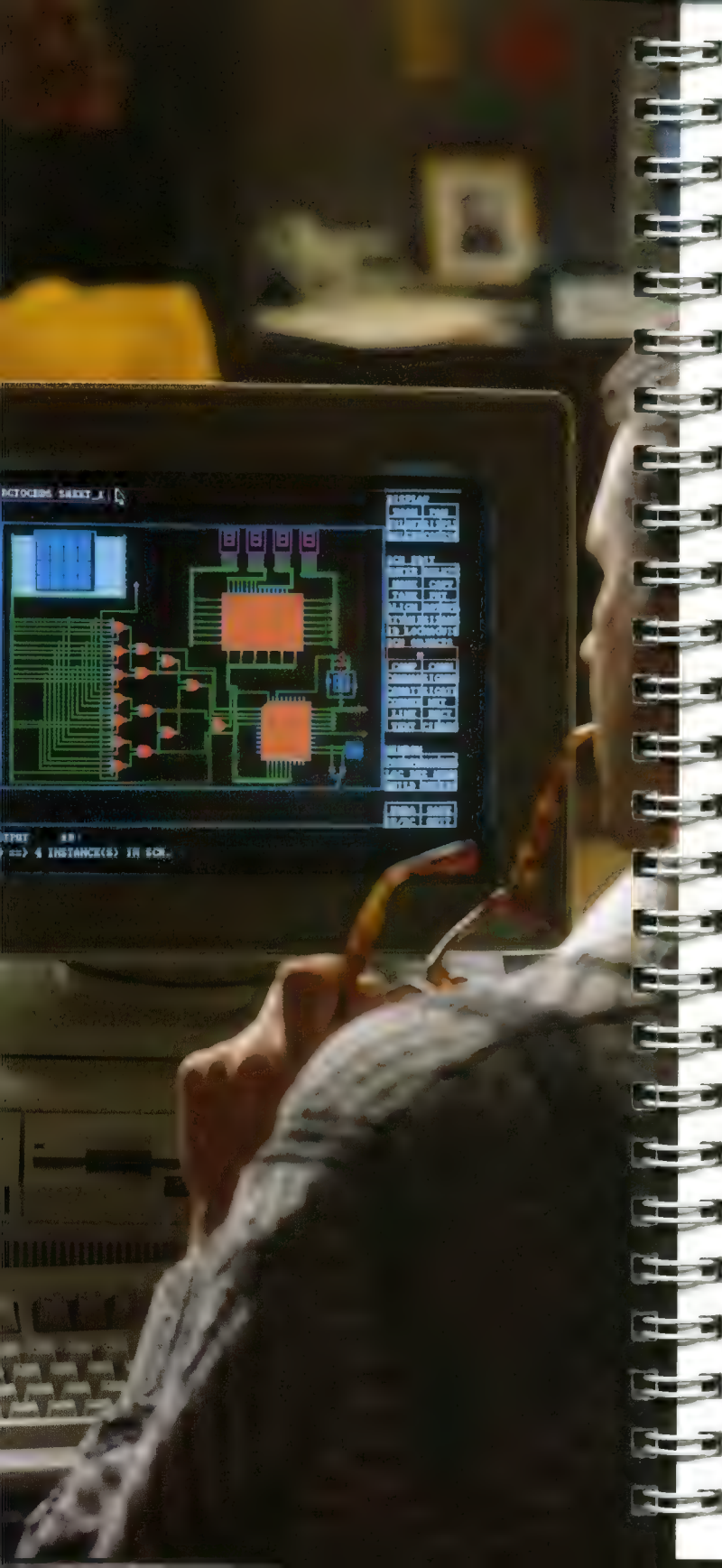
**Size**

Height—23.5", Width—6.5", Depth—19", Weight—52 lbs.

**Power supply**

207-watt (-041) or 225-watt (-071, -111, -311) worldwide; autosensing and auto-switching, 90-137 VAC or 180-265 VAC; 50 or 60 Hz





# Displays

## Highlights

The PS/2 display family incorporates advanced technology that, when coupled with the graphics support integrated in every model of the PS/2 family and with any appropriate display adapter, provides a vast improvement in addressability and color capabilities.

Features common to the five IBM displays include:

### *Higher addressability*

### *Enhanced color/shading capability*

### *Clarity and quality*

- Wide selection in screen sizes, 12 to 19 inches (diagonal measurement)
- Double-scan 200-line modes
- 4:3 horizontal-to-vertical data area aspect ratio

### *Common analog port for display interchangeability*

- Personal System/2 family
- IBM PC family via IBM Personal System/2 Display Adapter

### *Automatic mode switching*

### *Analog display interface*

- A palette of more than 256,000 colors (color displays)
- Up to 64 shades of gray (monochrome displays)
- Improved performance

## IBM Personal System/2 Monochrome Display 8503

<b>Input signal</b>	Analog
<b>Display size</b>	12" (diagonal measurement)
<b>Display type</b>	Monochrome White-on-black or black-on-white
<b>Palette</b>	Up to 64 shades of gray
<b>Addressability</b>	<ul style="list-style-type: none"> <li>• 720 x 400 text</li> <li>• 640 x 480 graphics</li> <li>• 320 x 200 graphics</li> </ul>
<b>Character size</b>	<ul style="list-style-type: none"> <li>• 8 x 16 character box text (MCGA)</li> <li>• 9 x 16 character box text (VGA)</li> </ul>
<b>Speed</b>	<ul style="list-style-type: none"> <li>• 31.5 KHz horizontal scan frequency (all modes)</li> <li>• Noninterlaced with up to 70 Hz vertical refresh rate</li> </ul>
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Tilt-and-swivel stand standard</li> <li>• 6-foot signal cable</li> <li>• Reduced glare</li> </ul>
<b>Size</b>	Height—12.4" (with stand), Width—12.6", Depth—12.2", Weight—18.8 lbs.



## IBM Personal System/2 Monochrome Display 8507

<b>Input signal</b>	Analog
<b>Display size</b>	19" (diagonal measurement)
<b>Display type</b>	Monochrome White-on-black or black-on-white
<b>Palette</b>	Up to 64 shades of gray
<b>Addressability</b>	<ul style="list-style-type: none"> <li>• 1,024 x 768 graphics*</li> <li>• All modes of Displays 8503, 8512, 8513 and 8514</li> </ul>
<b>Character size</b>	<ul style="list-style-type: none"> <li>• 12 x 20 character box text (85 columns x 38 rows)*</li> <li>• 7 x 15 character box text (146 columns x 51 rows)*</li> </ul>
<b>Speed</b>	<ul style="list-style-type: none"> <li>• 35.5 KHz horizontal scan frequency interlaced at 43.5 Hz vertical refresh rate*</li> <li>• Same as Displays 8503, 8512, 8513 and 8514 when operating in those modes</li> </ul>
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Brightness and contrast controls on front</li> <li>• Tilt-and-swivel stand standard</li> <li>• Antireflective screen</li> </ul>
<b>Size</b>	Height—17.75" (with stand), Width—18.75", Depth—17", Weight—51.7 lbs.

\*Requires use of IBM Personal System/2 Display Adapter 8514/A for 1,024 x 768 screen resolution.





## IBM Personal System/2 Color Display 8512

<b>Input signal</b>	Analog
<b>Display size</b>	14" (diagonal measurement)
<b>Display type</b>	Color
<b>Palette</b>	Up to 256 out of more than 256,000 colors
<b>Addressability</b>	<ul style="list-style-type: none"> <li>• 720 x 400 text</li> <li>• 640 x 480 graphics</li> <li>• 320 x 200 graphics</li> </ul>
<b>Character size</b>	<ul style="list-style-type: none"> <li>• 8 x 16 character box text (MCGA)</li> <li>• 9 x 16 character box text (VGA)</li> </ul>
<b>Speed</b>	<ul style="list-style-type: none"> <li>• 31.5 KHz horizontal scan frequency (all modes)</li> <li>• Noninterlaced with up to 70 Hz vertical refresh rate</li> </ul>
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Tilt-and-swivel stand optional</li> <li>• 6-foot signal cable</li> <li>• Reduced glare</li> <li>• 0.41mm stripe format</li> </ul>
<b>Size</b>	Height—14.6" (with stand), Width—14", Depth—15.5", Weight—33 lbs.



## IBM Personal System/2 Color Display 8513

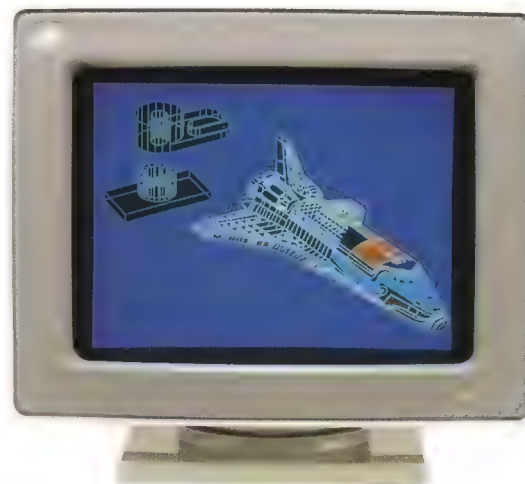
<b>Input signal</b>	Analog
<b>Display size</b>	12" (diagonal measurement)
<b>Display type</b>	Color
<b>Palette</b>	Up to 256 out of more than 256,000 colors
<b>Addressability</b>	<ul style="list-style-type: none"> <li>• 720 x 400 text</li> <li>• 640 x 480 graphics</li> <li>• 320 x 200 graphics</li> </ul>
<b>Character size</b>	<ul style="list-style-type: none"> <li>• 8 x 16 character box text (MCGA)</li> <li>• 9 x 16 character box text (VGA)</li> </ul>
<b>Speed</b>	<ul style="list-style-type: none"> <li>• 31.5 KHz horizontal scan frequency (all modes)</li> <li>• Noninterlaced with up to 70 Hz vertical refresh rate</li> </ul>
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Tilt-and-swivel stand standard</li> <li>• 6-foot signal cable</li> <li>• Reduced glare</li> <li>• 0.28mm dot phosphor pitch</li> </ul>
<b>Size</b>	Height—12.3" (with stand), Width—12.6", Depth—14.5", Weight—23 lbs.



## IBM Personal System/2 Color Display 8514

<b>Input signal</b>	Analog
<b>Display size</b>	16" (diagonal measurement)
<b>Display type</b>	Color
<b>Palette</b>	Up to 256 out of more than 256,000 colors
<b>Addressability</b>	<ul style="list-style-type: none"> <li>• 1,024 x 768 graphics*</li> <li>• All modes of Displays 8503, 8507, 8512 and 8513</li> </ul>
<b>Character size</b>	<ul style="list-style-type: none"> <li>• 12 x 20 character box text (85 columns x 38 rows)*</li> <li>• 7 x 15 character box text (146 columns x 51 rows)*</li> </ul>
<b>Speed</b>	<ul style="list-style-type: none"> <li>• 35.5 KHz horizontal scan frequency interlaced at 43.5 Hz vertical refresh rate*</li> <li>• Same as Displays 8503, 8507, 8512 and 8513 when operating in those modes</li> </ul>
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Up to 146 columns by 51 rows*</li> <li>• Tilt-and-swivel stand standard</li> <li>• 6-foot signal cable</li> <li>• Reduced glare</li> <li>• 0.31mm dot phosphor pitch</li> </ul>
<b>Size</b>	Height—12.6" (with stand), Width—15.8", Depth—16.3", Weight—38.5 lbs.

\*Requires use of IBM Personal System/2 Display Adapter 8514/A for 1,024 x 768 screen resolution.



*Higher addressability and larger screen size for greater screen content.*



*When used with an IBM Personal System/2 Display Adapter 8514/A, it allows you to create graphics with unprecedented definition and clarity.*



## Printers

### Highlights

To provide the finishing touch to the Personal System/2, IBM has again enhanced and expanded its printer family.

The popular Proprinter™ family has been enhanced by the addition of two models that use 24-wire printhead technology for letter-quality printing at excellent print speed.

The newly announced IBM Quickwriter™ Printer is a truly multipurpose printer. With the fabric ribbon, its speed and five-part-forms capability make it an ideal data processing printer. With the optional Selectric® font, film ribbon and one of its three optional cut-sheet feeders, it is an executive-letter-quality printer suitable for an automated office environment or for use in a single workstation.

The Quietwriter® family provides excellent print quality and paper handling in a non-impact technology that eliminates the use of noisy hammers and printwheels.

The IBM Personal Pageprinter Subsystems is a high-resolution laser printer that produces polished documents for your publishing or other printing needs.

™ Proprinter and Quickwriter are trademarks of International Business Machines Corporation.  
® Selectric and Quietwriter are registered trademarks of International Business Machines Corporation.



## Proprinter II

<b>Machine number</b>	Model 4201-002
<b>Technology</b>	9-wire matrix
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Variable pitches (5, 6, 8.55, 10, 12, 17.1)</li> <li>• High-resolution APA graphics</li> <li>• Forms-load assist</li> <li>• Paper-tear assist</li> <li>• Programmable operator panel</li> </ul>
<b>Print speed</b>	<ul style="list-style-type: none"> <li>• 240 cps (DP Fastfont™)</li> <li>• 200 cps (DP normal)</li> <li>• 100 cps (emphasized)</li> <li>• 40 cps (near-letter-quality)</li> </ul>
<b>Paper handling</b>	<ul style="list-style-type: none"> <li>• Single-sheet feed (manual)</li> <li>• Envelope (manual)</li> <li>• Forms up to four parts</li> </ul>
<b>Carriage</b>	<b>Standard</b> <ul style="list-style-type: none"> <li>• 3-inch to 11-inch paper width for cut sheets</li> <li>• 3-inch to 10-inch paper width for continuous forms</li> <li>• 3-inch to 11-inch width for envelopes</li> </ul>
<b>Size</b>	Height—5.25", Width—16", Depth—13.5", Weight—17.5 lbs.

™ Fastfont is a trademark of International Business Machines Corporation.



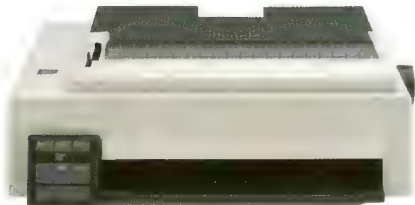
## Proprinter II XL

<b>Machine number</b>	Model 4202-002
<b>Technology</b>	9-wire matrix
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Variable pitches (5, 6, 8.55, 10, 12, 17.1 and proportional)</li> <li>• Standard 4Kb print buffer (8Kb optional)</li> <li>• Forms-load assist</li> <li>• Paper-tear assist</li> <li>• High-resolution APA graphics</li> <li>• Operator panel menu selection</li> <li>• Two NLQ fonts</li> </ul>
<b>Print speed</b>	<ul style="list-style-type: none"> <li>• 240 cps (12 cpi, DP Fastfont)</li> <li>• 200 cps (10 cpi, DP normal)</li> <li>• 100 cps (10 cpi, emphasized)</li> <li>• 40 cps (10 cpi, near-letter-quality)</li> </ul>
<b>Paper handling</b>	<ul style="list-style-type: none"> <li>• Single-sheet feed (manual)</li> <li>• Envelope (manual)</li> <li>• Continuous-forms feed</li> </ul>
<b>Carriage</b>	<b>Wide</b> <ul style="list-style-type: none"> <li>• 3-inch to 16.5-inch paper width for cut sheets</li> <li>• 3-inch to 15-inch paper width for continuous forms</li> <li>• 3.5 x 6-inch to 5 x 11.5-inch envelopes</li> </ul>
<b>Size</b>	Height—5.25", Width—22", Depth—13.5", Weight—24 lbs.



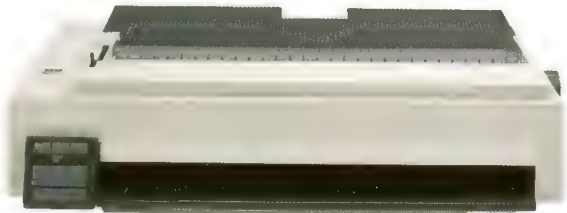
Proprinter X24

Machine number	Model 4207-001
Technology	24-wire matrix
Highlights	<ul style="list-style-type: none"><li>• Variable pitches (5, 6, 8.55, 10, 12, 17.1 and proportional)</li><li>• 6Kb print buffer</li><li>• Letter-quality</li><li>• High-resolution APA graphics</li><li>• Enhanced operator control panel</li></ul>
Print speed	<ul style="list-style-type: none"><li>• 200-240 cps (draft)</li><li>• 67-80 cps (letter-quality)</li></ul>
Paper handling	<ul style="list-style-type: none"><li>• Single-sheet feed (manual)</li><li>• Continuous-forms feed</li><li>• Automatic sheet feed (optional)</li></ul>
Carriage	<i>Standard</i> <ul style="list-style-type: none"><li>• 3-inch to 11-inch paper width for cut sheets</li><li>• 3-inch to 10-inch paper width for continuous forms</li></ul>
Size	Height—5.25", Width—16", Depth—14.3", Weight—17.2 lbs.



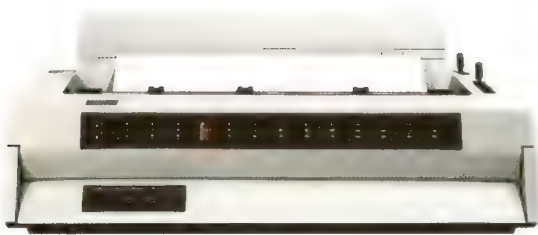
Proprinter XL24

Machine number	Model 4208-001
Technology	24-wire matrix
Highlights	<ul style="list-style-type: none"><li>• Variable pitches (5, 6, 8.55, 10, 12, 17.1 and proportional)</li><li>• 6Kb print buffer</li><li>• Letter-quality</li><li>• High-resolution APA graphics</li><li>• Enhanced operator control panel</li></ul>
Print speed	<ul style="list-style-type: none"><li>• 200-240 cps (draft)</li><li>• 67-80 cps (letter-quality)</li></ul>
Paper handling	<ul style="list-style-type: none"><li>• Single-sheet feed (manual)</li><li>• Continuous-forms feed</li><li>• Automatic sheet feed (optional)</li></ul>
Carriage	<i>Wide</i> <ul style="list-style-type: none"><li>• 3-inch to 16.5-inch paper width for cut sheets</li><li>• 3-inch to 15-inch paper width for continuous forms</li></ul>
Size	Height—5.25", Width—22.6", Depth—14.3", Weight—22.6 lbs.



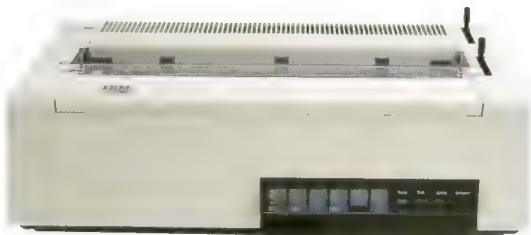
Quietwriter Printer Model 2

Machine number	Model 5201-002
Technology	Resistive ribbon thermal transfer
Highlights	<ul style="list-style-type: none"><li>• Nonimpact letter-quality printing</li><li>• Drop-ribbon cartridge</li><li>• APA graphics</li><li>• Two online selectable font cartridges</li></ul>
Print speed	40-60 cps
Paper handling	<ul style="list-style-type: none"><li>• Semiautomatic single-sheet paper feed</li><li>• Optional automatic single-drawer sheet feed</li><li>• Continuous-forms feed</li></ul>
Carriage	<i>Standard</i> <ul style="list-style-type: none"><li>• 3-inch to 15-inch paper width for cut sheets</li><li>• 2.5-inch to 14.5-inch continuous-forms paper width</li></ul>
Size	Height—8.5", Width—21.3", Depth—14.4", Weight—22 lbs.



Quietwriter III Printer

Machine number	Model 5202-001
Technology	Resistive ribbon thermal transfer
Highlights	<ul style="list-style-type: none"><li>• Letter-quality</li><li>• High-resolution APA graphics</li><li>• Improved ribbon yield</li><li>• Up to eight fonts online</li></ul>
Print speed	<ul style="list-style-type: none"><li>• 160-274 cps (draft)</li><li>• 100-171 cps (letter-quality)</li><li>• 80-136 cps (enhanced)</li></ul>
Paper handling	<ul style="list-style-type: none"><li>• Semiautomatic single-sheet insertion (friction)</li><li>• Adjustable single-bin sheet feed (optional)</li><li>• Dual-drawer sheet feed (optional)</li><li>• Envelope option (for use with dual-drawer sheet feed)</li><li>• Continuous-forms feed (optional)</li></ul>
Carriage	<i>Wide</i> 3-inch to 16.5-inch paper width for cut sheets
Size	Height—7.1", Width—21.7", Depth—15", Weight—24 lbs.





## Quickwriter Printer

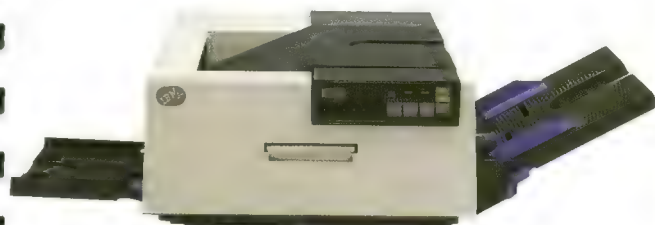
<b>Machine number</b>	Model 5204-001
<b>Technology</b>	24-wire matrix
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Faster print/draft throughput speed</li> <li>• Paper-handling versatility</li> <li>• Letter-quality</li> <li>• Up to 12 fonts online</li> </ul>
<b>Print speed</b>	<ul style="list-style-type: none"> <li>• 330 cps (DP or draft)</li> <li>• 110 cps (letter-quality)</li> <li>• 55 cps (Selectric font)</li> </ul>
<b>Paper handling</b>	<ul style="list-style-type: none"> <li>• Semiautomatic single-sheet insertion (friction)</li> <li>• Adjustable single-bin sheet feed (optional)</li> <li>• Dual-drawer sheet feed (optional)</li> <li>• Envelope option (for use with dual-drawer sheet feed)</li> <li>• Continuous-forms feed (optional)</li> </ul>
<b>Carriage</b>	<p><b>Wide</b></p> <ul style="list-style-type: none"> <li>• 3-inch to 16.5-inch width for cut sheets</li> <li>• 3-inch to 14.5-inch continuous paper width (pin to pin)</li> </ul>
<b>Size</b>	Height—7.4", Width—21.6", Depth—14.3", Weight—27.5 lbs.



## Personal Pageprinter Subsystems

<b>Machine number</b>	Model 4216-020
<b>Technology</b>	All-points-addressable laser
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• 300 x 300-pels-per-inch resolution</li> <li>• High-speed video interface attachment to PS/2 Models 30 through 80 386, Personal Computer AT Models 99, 239, 319, 339, and Personal Computer XT™ Model 286</li> <li>• PostScript®-compatible output</li> <li>• Proprinter XL emulation</li> <li>• Quiet operation</li> <li>• Small footprint</li> <li>• Includes Personal Pageprinter Adapter Program software</li> </ul>
<b>Print speed</b>	Up to six pages per minute
<b>Paper handling</b>	<ul style="list-style-type: none"> <li>• Legal, letter, half-letter sizes</li> <li>• Labels, transparencies, envelopes</li> <li>• 150-sheet input drawer</li> <li>• Automatic or manual feed</li> </ul>
<b>Size</b>	Height—8.4", Width—16.5", Depth—17.7", Weight—37.5 lbs.

™ Personal Computer XT is a trademark of International Business Machines Corporation.  
 ® PostScript is a registered trademark of Adobe Systems, Inc.





## Highlights

# Enhancement products

Compatibility, expansion, functional growth and quality are all attributes that IBM planned for from the beginning. The IBM PS/2 enhancement products are created with the same attention to detail and commitment to quality and reliability as the PS/2 systems.

A variety of enhancements provides co-existence and smooth data exchange between PS/2 models and IBM PCs. An external or internal diskette drive and a special data migration tool are offered to facilitate smooth migration from one to the other.

Growth of your business requires growth in the capabilities of your personal computers. A wide selection of IBM enhancements is offered to expand memory, increase storage capacity, and speed up complex calculations... easily and economically.

Other enhancements expand the capabilities of PS/2 models and IBM PCs with functions ranging from optical data storage to synthesized sound.

Best of all, IBM stands behind each PS/2 enhancement product with the same one-year warranty. And when your warranty ends, most of these enhancements are included at no additional charge under your PS/2 system's IBM Service option.

Altogether, these enhancements result in:

- Continuity between past and present
- Growth for the future
- Versatility
- Assurance of IBM reliability and service

### IBM Personal System/2 Data Migration Facility

<b>Description</b>	A low-cost, easy-to-use connecting tool for file transfers from an installed personal computer with a 5.25-inch diskette drive to a PS/2 model
<b>Operation</b>	<ul style="list-style-type: none"><li>• Via the printer cable on existing system and parallel port on a PS/2 model</li><li>• Unidirectional from IBM PC, PC XT, XT Model 286 or PC AT to any PS/2 model</li><li>• File transfer may be diskette to diskette, fixed disk to fixed disk, or any combination</li></ul>
<b>Product packaging</b>	<ul style="list-style-type: none"><li>• 5.25-inch diskette with a send program, the connector itself, and the appropriate instructions for use</li><li>• Receive program is included on the 3.5-inch starter diskette packaged with PS/2 Models 30 and 30 286 or the reference diskette packaged with PS/2 Models 50 through 80 386</li></ul>

### IBM Personal Computer 3.5" External Diskette Drive

<b>Description</b>	Diskette drive for IBM PCs that use 720Kb 3.5-inch software and data diskettes to enable sharing of data with PS/2 models or IBM PCs with 3.5-inch drives
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Enhances and supports migration to PS/2</li><li>• Facilitates coexistence of 5.25-inch diskette-based systems with the PS/2</li></ul>

### IBM Personal System/2 5.25" External Diskette Drive Model 4869-001 (360Kb)

### 5.25" External Diskette Drive Model 4869-002 (1.2Mb)\*

### 5.25" Internal Diskette Drive Feature 8006 (1.2Mb)\*

<b>Description</b>	Diskette drives for PS/2 models that use 360Kb (4869-001) or 1.2Mb (4869-002 and Internal Diskette Drive) 5.25-inch software and data diskettes
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Enable sharing of data with 5.25-inch diskette-based PCs</li><li>• Enhance and support gradual conversion to PS/2 technology</li><li>• Provide PS/2 models with immediate access to information stored on 5.25-inch media</li></ul>
<b>Hardware requirements</b>	<ul style="list-style-type: none"><li>• IBM 5.25" External Diskette Drive Adapter (attaches 4869-001 to PS/2 Models 25 and 30-021)</li><li>• IBM 5.25" External Diskette Drive Adapter/A (attaches 4869-001 to PS/2 Models 50 through 80 386)</li><li>• IBM 5.25" Diskette Adapter/A (attaches 4869-002 or Feature 8006 to PS/2 Models 50 through 80 386)</li></ul>
<b>Systems supported</b>	<ul style="list-style-type: none"><li>• External Model 4869-001 (all PS/2 models)</li><li>• External Model 4869-002 (PS/2 Models 50 through 80 386)</li><li>• Feature 8006 (internal) (PS/2 Models 60 and 80 386)</li></ul>

\*Available through IBM Authorized Dealers only.



## 3.5-inch diskettes

<b>Description</b>	The primary removable storage media used in the Personal System/2 family <ul style="list-style-type: none"> <li>• 1Mb per diskette for PS/2 Models 25 and 30</li> <li>• 2Mb per diskette for PS/2 Models 30 286 through 80 386</li> </ul>
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<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Enhanced reliability; durable casing provides data protection</li> <li>• Increased storage capacity (2Mb diskette)</li> <li>• Smaller size makes storage easier and simpler and reduces drive-size limitations</li> </ul>
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## IBM 3363 Optical Disk Drive

<b>Description</b>	A high-performance optical storage product that uses a 200Mb write-once, removable cartridge about equal in size to a 5.25-inch diskette
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<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Enables storage of large amounts of data in a small package at a low cost</li> <li>• Expands online data storage; offloads data files</li> <li>• Provides mobility and security with removable cartridge</li> </ul>
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<b>Systems supported</b>	<ul style="list-style-type: none"> <li>• Model A01 (external): IBM PC, PC XT, XT Model 286, PC AT, 3270 PC, 3270 PC AT, PS/2 Models 30 and 30 286</li> <li>• Model A11 (external): PS/2 Models 50 through 80 386</li> <li>• Model B01 (external): for attachment to Model A01 or A11 or for use as an internal second drive</li> <li>• Feature 8700 (internal): PS/2 Models 60 and 80 386</li> </ul>
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## IBM 6157 Streaming Tape Drive

<b>Description</b>	An external, stand-alone tape drive unit to provide backup for fixed disks
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<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Allows fast, convenient save/restore and data interchange capabilities</li> <li>• Provides data security with removable cartridge</li> <li>• Enhances migration to PS/2</li> </ul>
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<b>Hardware/software requirements</b>	<ul style="list-style-type: none"> <li>• SY-TOS/IBM Tape Utilities (SY-TOS) Version 2.0 menu-driven software</li> <li>• IBM 6157 Adapter Card</li> <li>• One ¼-inch data cartridge (ANSI industry standard X3B5-83.71)</li> </ul>
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## IBM Personal System/2 Internal Tape Backup Unit

<b>Description</b>	An 80Mb tape backup unit that uses ¼-inch tape minicartridges and mounts within the system unit
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<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Internally mounted; saves valuable desk-top workspace</li> <li>• Attaches to second internal diskette drive interface—no separate adapter card, external power source, or attachment cables are required</li> <li>• Enables migration from compatible PS/2-formatted data backups</li> <li>• Available in a convenience kit that includes a menu-driven backup software program</li> </ul>
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<b>Systems supported</b>	PS/2 Models 50 through 80 386
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*Note: For fixed disk options, see page 88.*

### IBM PageScanner Subsystem

<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Photographs and line-art image capture</li> <li>• Grayscale (128 levels) and black-and-white images</li> <li>• 300-pel-per-inch scanning</li> <li>• Variable output resolution: 1 to 600 pels per inch</li> <li>• Darkness and contrast adjustments</li> <li>• Flatbed design to accommodate bound documents</li> <li>• 8½ x 11-inch scan area</li> <li>• Includes IBM PageScanner™ cable, adapter cards and Getting Started Stand-alone Image Capture Program</li> </ul>
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<b>Hardware requirements</b>	3119 Adapter/A
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<b>Systems supported</b>	PS/2 Models 50 through 80 386
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### IBM 3117 and 3118 Scanners

<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Line-art image capture</li> <li>• 240-pel-per-inch scanning</li> <li>• 8½ x 11-inch or partial page scan area</li> <li>• Up to 16 levels of grayscale</li> <li>• Compression ratio of up to 27:1 to reduce storage requirements</li> </ul>
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<b>Hardware requirements</b>	<ul style="list-style-type: none"> <li>• 3117 PC Adapter supports attachment of 3117 and 3118 Scanners for PS/2 Models 25, 30, 30 286</li> <li>• 3117 Adapter/A supports attachment of 3117 Scanner for PS/2 Models 50 through 80 386 (except 70-A21)</li> <li>• High-speed Adapter/A supports attachment of 3118 Scanner and 3117 Scanner with extension unit for PS/2 Models 50 through 80 386 (except 70-A21)</li> </ul>
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<b>Systems supported</b>	PC AT, PC XT, 3270 PC, all PS/2 models
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™ PageScanner is a trademark of International Business Machines Corporation.

### IBM Personal System/2 2–8Mb 80386 Memory Expansion Option

<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Provides 2Mb of high-speed (85ns) memory standard</li> <li>• Supports up to three additional IBM 1Mb or 2Mb Memory Module Kits to provide a total 8Mb of memory for each card</li> </ul>
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<b>Systems supported</b>	PS/2 Models 70 386, 80 386
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### IBM Personal System/2 80386 Memory Expansion Option

<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Provides 2Mb of high-speed (80ns) memory standard</li> <li>• Supports up to two additional IBM 2Mb Memory Expansion Kits to provide a total 6Mb of memory for each card</li> </ul>
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<b>Systems supported</b>	PS/2 Models 70 386, 80 386
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### IBM Personal System/2 0–8Mb Expanded Memory Adapter/A

<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Provides up to 8Mb of 120ns memory for each card</li> <li>• Supports up to four IBM 0.5Mb Memory Module Kits or four IBM 2Mb Memory Module Kits</li> <li>• Includes EMS 3.2 and XMA capability</li> <li>• Requires and supports device drivers resident within IBM 3270 Workstation Program, Versions 1.0 and 1.1</li> <li>• Operates as contiguous memory with IBM OS/2 Standard and Extended Editions</li> <li>• Supports up to six DOS applications and/or up to four host sessions concurrently</li> </ul>
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<b>Systems supported</b>	PS/2 Models 50 and 50 Z, 60
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## Memory expansion products

(continued)

### IBM Personal System/2 80286 Memory Expansion Option

- Highlights**
- Provides 512Kb of memory standard
  - Supports up to three additional IBM 512Kb Memory Expansion Kits to provide a total 2Mb of memory for each card

**Systems supported** PS/2 Models 50 and 50 Z, 60

### IBM Personal System/2 Multifunction Adapter

- Highlights**
- Provides serial port, parallel printer port, and up to 12Mb extended memory
  - Supports up to six IBM 0.5Mb Memory Module Kits (FC 3397) or up to six IBM 2Mb Memory Module Kits (FC 8733)

**Systems supported**

- PS/2 Model 30 286
- LIM EMS 4.0 support available with the purchase of Above Disc™ 2.0

### IBM 2Mb Expanded Memory Adapter

- Highlights**
- Provides 2Mb of expanded memory
  - Requires and supports device drivers resident within the IBM 3270 Workstation Program Versions 1.0 and 1.1
  - Supports up to six DOS applications and/or up to four host sessions concurrently
  - Provides application programs with expanded memory support, an Expanded Memory Specification interface, and DOS Virtual Disk interfaces
  - Includes parallel port

**Systems supported** PC XT, PC AT, 3270 PC, 3270 PC AT, PS/2 Models 25 and 30 (PS/2 Model 30 286 and XT Model 286 not supported)

™ Above Disc is a trademark of Teleware West, Inc.

## I/O attachment cards

### IBM Personal System/2 Display Adapter

- Highlights**
- Analog display adapter
  - Video Graphics Array**  
Same functions as found on the system board of PS/2 Models 50 through 80 386
  - Color summing**
    - Color to monochrome (gray shading) conversion
    - Automatic display type recognition

**Systems supported** IBM PC, PC XT, XT Model 286, PC AT, PS/2 Model 30

### IBM Personal System/2 Display Adapter 8514/A

- Highlights**
- Advanced function analog display adapter
  - Supports all Video Graphics Array modes
  - Supports all five Personal System/2 displays
  - Advanced function modes\***
    - 640 x 480 pels
    - 1,024 x 768 pels (using the 8514 Color Display)
    - Advanced text and alphanumeric support (up to 146 columns x 51 rows)
    - BITBLT hardware for manipulating images and windows
    - Hardware to assist drawing of lines and areas
    - Up to 256 colors (or 64 shades of gray) out of a palette of 256,000 colors (IBM 8514 Memory Expansion Feature required for more than 16 colors)

**Systems supported** PS/2 Models 50 through 80 386

\*An adapter interface for easier programming is included.



## *I/O attachment cards*

(continued)

### **Personal Pageprinter Adapter**

#### **Highlights**

- High-speed (2 megabit/sec) video interface to 4216 Personal Pageprinter
- 10 MHz Motorola 68000 Processor
- 2.5Mb RAM
- Bidirectional Micro Channel Interface

#### **Systems supported**

PS/2 Model 30, PC AT Models 99, 239, 319, 339, PC XT Model 286

### **Personal Pageprinter Adapter/A**

#### **Highlights**

Same as above

#### **Systems supported**

PS/2 Models 50 through 80 386

### **IBM Music Feature**

#### **Highlights**

- Stereo FM synthesized sound
- 336 instrument voices
- Eight notes may be played simultaneously
- Headphone connection for private listening
- MIDI interface
- Sound generation independent of system processor
- Amplified speakers or headphones required
- MIDI keyboard recommended

#### **Systems supported**

IBM PC, PC XT, XT Model 286, PC AT and PS/2 Models 25, 30, 30 286

### **IBM Personal System/2 Speech Adapter**

#### **Highlights**

- Adds voice capability
- Required nonapplication-oriented software support is incorporated into an internal read-only memory (ROM) module

#### **Systems supported**

PS/2 Models 25, 30, 30 286

### **IBM Personal System/2 300/1200 Internal Modem/A**

#### **Highlights**

- Asynchronous data transmission
- Supports AT command set
- Compatible with Bell 212A and 103 practice

#### **Systems supported**

PS/2 Models 50 through 80 386

## IBM PS/2 Multi-Protocol Adapter/A

### Highlights

- Supports async, bisync, HDLC, or SDLC protocols, half- or full-duplex serial transmission
- Automatic protocol switching via software
- Fully programmable at speeds up to 19.2Kbps

### Systems supported

- PS/2 Models 50 through 80 386

## IBM PS/2 Dual Asynchronous Adapter/A

### Highlights

- Provides multiuser attachment on two independent RS-232C ports
- Fully programmable at speeds from 50 to 19,200bps
- Supports signal transmission across 50 feet of cable

### Systems supported

- PS/2 Models 50 through 80 386

# SolutionPacs

## Personal Publishing Options

### Highlights

- Allow users to turn appropriately configured PS/2s, IBM Personal Computer ATs, and IBM Personal Computer XT 286s into Personal Publishing Systems
- High-quality, professional-looking documents that include text, graphics and images
- Flexible and rapid page layouts
- Multiple type styles and sizes

### Components

- IBM Personal Pageprinter, Personal Pageprinter Adapter or Personal Pageprinter Adapter/A, Personal Pageprinter Adapter Program with Adobe PostScript
- Aldus PageMaker™
- Microsoft® Windows, Windows Write and Windows Paint
- PS/2 Mouse (option/A only)

### Services

- Single order number
- 800-number support
- Setup/start-up diskette
- Optional on-site setup support available from the IBM National Service Division

## Additional IBM SolutionPacs™

- Business Adviser Financial Accounting
- CADwrite Design and Drafting System
- Doctor's Office Management
- Legal Profession Series
- Construction Industry Series

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® Microsoft is a registered trademark of Microsoft Corporation.

# Software

## Highlights

IBM's software offerings provide new and higher levels of functions plus greater ease of use. They also set the stage for smooth integration of systems and applications. Nowhere is this more apparent than in IBM Operating System/2—IBM's strategic operating system for Personal System/2.

OS/2 offers compatibility with DOS 3.3 as well as with IBM Local Area Network (LAN) and host communications software programs. And it allows you to use a wide selection of programming languages to build new applications in the OS/2 environment.

In addition, the AIX (Advanced Interactive Executive) PS/2 Operating System licensed program is a member of the IBM AIX family of operating systems. AIX PS/2 is a multi-user, multitasking virtual memory operating system for the 80386-based Personal System/2 models (70 386 and 80 386). It provides UNIX functions on the PS/2 and can operate with up to 16 concurrent users.

IBM DOS (Disk Operating System) is the most popular operating system for single-task applications. The new DOS 4.0 delivers expanded memory support, enlarged file capacity for fixed disk storage, enhanced video and graphics capabilities, and more.





### IBM Operating System/2

IBM's announcement of Operating System/2 brought a new generation of operating systems to personal computing. This family of operating systems provides expanded application and user support allowing for the complete utilization of IBM 80286- and 80386-based (supported in 80286 mode) systems. The ability to handle larger programs and to process those programs concurrently represents one of the most significant advancements ever in personal computing. OS/2's high level of compatibility with DOS simplifies implementation and provides coexistence with DOS. Furthermore, OS/2 takes a step closer toward consistency with other IBM systems as the first participant in IBM Systems Application Architecture.

### IBM Operating System/2 Standard Edition Versions 1.0 and 1.1

This multitasking operating system breaks the memory barrier by providing addressability up to 16Mb. It offers the ability to run multiple applications concurrently. A Presentation Manager™ for graphics and windowing functions is incorporated in Version 1.1.

#### Highlights

#### *Operating systems for IBM 80286- and 80386-based systems*

- 16Mb memory addressability
- Multitasking/multiapplication
- Support for file sizes up to 512Mb

#### *Participant in Systems Application Architecture (SAA)*

- Common user interface
- Common programming interface

#### *Versatility*

- Print spooler to allow multiple applications to print concurrently
- System editor to replace line editor

™ Presentation Manager is a trademark of International Business Machines Corporation.

#### *Enhanced usability*

- Graphics-based window facility (Version 1.1)
- Pop-up windows
- Contextual help

#### *IBM DOS Version 3.3 compatibility*

- Coexistence
- Migration aids
- DOS emulation
- File system compatibility
- Familiar command set

#### *OS/2 Presentation Manager*

- Provides window management, graphics support and ease-of-use features for OS/2 applications
- Provides an easy method to interchange files with host-based GDDM files
- Implements the Common User Access (CUA) component of SAA and complements IBM's strategic host graphics offerings
- Provides a device-independent programming interface for application development
- Allows direct data exchange between multiple concurrent operations as well as cut-and-paste
- Supports multiple output devices, graphics drawing and window management facilities, typographical fonts, raster operations and fast alphanumeric text
- Integrated part of Standard Edition Version 1.1 and Extended Edition Version 1.1

#### *Warranty and service plan*

- Three-month program warranty, including replacement, correction or refund
- Program services in place for 12 months from availability date

## IBM Operating System/2 Standard Edition Programmer Toolkit Versions 1.0 and 1.1

### Highlights

- Toolkit functions that improve programmer productivity for creating OS/2 applications
- Tools for creating dynamic link libraries and applications
- Programming aids for IBM Macro Assembler/2 and IBM C/2
- Presentation interface tools to assist in screen generation in a graphics and windowing environment (Version 1.1 only)
- Utilities to allow the development of programs that will run interchangeably in either OS/2 or DOS environments

## IBM Operating System/2 Extended Edition Versions 1.0 and 1.1

This edition of OS/2 provides a Communications Manager component that supports a broad range of communications capabilities. It also offers a Database Manager component that supports the IBM relational data base model. In addition, it offers the operating function and, in Version 1.1, the Presentation Manager provided by Operating System/2 Standard Edition (Version 1.1).

### Highlights

#### Combined communications capabilities

*Wide range of concurrent sessions*  
3270 Emulation, LANs, Asynchronous, X.25 and SNA LAN gateway support\*

*Concurrent multiple protocol support*  
LU6.2, IBM 3270 data stream (LU2), Asynchronous links and X.25\*

#### Concurrent emulation of multiple terminal types

- IBM 3270, IBM 3101, DEC™VT100
- IBM 5250 Workstation Feature\*

#### Communication and system management support

*Programming interfaces (APPC, SRPI, ACDI, NETBIOS, IEEE 802.2, a 3270 program interface)*

#### Built-in relational data base subsystem Interactive query and report writing

#### Consistency with IBM family of relational data base products

- IBM Database (DB2)
- Structured Query Language/Data System (SQL/DS)

#### LAN support

#### Built-in requester function

- Token-Ring Network
- PC Network
- Supported by IBM OS/2 LAN Server Program

#### Participant in Systems Application Architecture

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\*Planned enhancement.

## IBM Disk Operating System

Since the introduction of the IBM Personal Computer, DOS has proved to be an operating system capable of supporting a wide range of end-user environments from personal productivity to education to specialized applications. Key to the acceptance of DOS has been the open architecture and the application compatibility that IBM has maintained. DOS Version 3.3 and Version 4.0 demonstrate IBM's continuing commitment to the DOS environment by the addition of function, compatibility and the continuation of its open architecture.

### Version 3.3 highlights

- Support for the IBM PC family
- Support for the PS/2 family
- DOS 3.2 compatibility
- Enhanced system commands
- Increased number of opened files
- Increased number of communications ports (four)
- Support for multiple 32Mb disk partitions
- Base for enhanced connectivity
  - 3270 Communications family
  - IBM Local Area Network (LAN) products
- Base for 3270 Workstation Program enhanced function
- Support for 11 national languages
- Technical Reference Manual

### Version 4.0 highlights

- Support for files greater than 32Mb that allows a single file to be as large as the media
- DOS Shell: group, file and directory services that are user-friendly alternatives to command prompt line
- Expanded Memory Support: memory addressing above 640Kb
- Extended National Language Support: 14 languages
- 19 keyboard layouts
- Display of more than 25 lines of text

## Advanced Interactive Executive Personal System/2 (AIX PS/2)

The AIX family of products provides effective UNIX solutions for single users and entire enterprises alike. These products also provide powerful support for industry applications in government, education, engineering/science and technical/professional areas.

Many of the AIX features listed as highlights are available from IBM as separately priced offerings.

### Highlights

- IBM's strategic UNIX operating environment for IBM 80386-based systems
- Member of the IBM AIX family of operating systems
  - Consistent implementation from PS/2 through 3090
  - Implements industry standards
- Support for up to 16 concurrent users
- 32-bit virtual memory addressing
- C, VS FORTRAN, VS Pascal language
- Text and mail processing
- Windowing and graphics
- Support for multiple users of existing DOS applications
- Distributed data base management
- Powerful distributed processing
  - Single system image
  - Remote files and devices
  - Remote processes
- Token-Ring and Ethernet® LAN TCP/IP support
- Async and X.25 communications
- 3278/79 Emulation
- XENIX® migration
- National Language Support

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## IBM PS/2 RPG II Application Platform

### IBM PS/2 RPG II Application Toolkit

Now the vast library of RPG II applications can be brought together with the price/performance of Personal System/2 for more cost-effective business solutions. The PS/2 RPG II Application Platform provides the ability to run RPG II programs on a Personal System/2 using OS/2 in a multiuser execution environment. Support for up to eight attached terminals or intelligent workstations, plus the system console, is provided with a single license.

The PS/2 RPG II Application Toolkit provides the RPG II Compiler and Screen Design Aid required to convert existing applications or develop new ones for the PS/2-OS/2 environment. (The Application Platform is a prerequisite for the Toolkit.)

#### Highlights

- Terminal manager to support multiple-user access to RPG II applications executing on the PS/2 central processor
- Record locking
- Compatibility with System/36, including:
  - Sequential, direct and indexed file types
  - Library management
  - Operation Control language statements and System Support Program subset
  - Source Entry Utility and Screen Design Aid
  - Data File Utility and Sort
  - Job scheduler management (JOBQ)
  - RPG II Compiler
- Conversion of RPG II files to standard text files for use in DOS or OS/2 applications
- Conversion of files from EBCDIC to ASCII and ASCII to EBCDIC

#### Systems supported

- PS/2 RPG II Application Platform and Toolkit execute on:
- PS/2 Models 50 through 80 386 using OS/2 Standard Edition 1.0 or OS/2 Extended Edition 1.0
  - Up to eight of the following displays or workstations may be attached
    - 3151 ASCII Display (Models 3X/4X) with the Cartridge for Multiuser System Attachment
    - Any PS/2 model\* (except Model 30 286)
    - PC AT Model 339,\* XT Model 286\*

## IBM BASIC Compiler/2

#### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- IBM BASIC Compiler/2 and the compiled PS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- Provides a common language interface that allows calling routines coded with the IBM C/2, the IBM Pascal Compiler/2, or the IBM Macro Assembler/2
- Includes interactive symbolic debugger

## IBM FORTRAN/2

#### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- The IBM FORTRAN/2 and the compiled OS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- High degree of functional compatibility with IBM Professional FORTRAN V1.3
- Supports Math Co-Processor and Math Co-Processor emulation
- Designed according to specifications of ANSI Standard X3.9-1978
- Includes interactive debugger

\*Requires PS/2 Enhanced Keyboard.

## IBM Pascal Compiler/2

### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- The IBM Pascal Compiler/2 and the compiled OS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- Functionally compatible with IBM Pascal Compiler Version 2.0
- Capability for a compiled Pascal program to call programs written in IBM Macro Assembler/2 or IBM C/2
- Includes interactive symbolic debugger

## IBM COBOL/2

### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- The IBM COBOL/2 and the compiled OS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- Registered licensees of IBM COBOL Version 2.0 are eligible to receive the IBM COBOL/2 at no charge when available
- Designed according to specifications of ANSI X3.23-1985, ISO 1979-1985 (intermediate level)
- Includes interactive debug tool

## IBM C/2

### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- IBM C/2 and the compiled OS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- Compatibility with IBM Personal Computer C Compiler Version 1.0, plus many additional features
- Participant in Systems Application Architecture
- Includes interactive symbolic debugger

## IBM Macro Assembler/2

### Highlights

- Operating systems
  - Operating System/2
  - DOS Version 3.3 and 4.0
- The IBM Macro Assembler/2 and the compiled OS/2 protect-mode application programs it generates can run concurrently with other applications in the OS/2 multitasking environment
- Compatibility with IBM Personal Computer Macro Assembler Version 2.0: function, source code and object code files
- Includes a library manager to facilitate the creation and maintenance of libraries
- Includes Structured Assembly Language Utilities
- Includes interactive symbolic debugger

## IBM 3270 Workstation Program Version 1.1

### Highlights

- IBM 3270 Personal Computer Control Program Version 3 function extended to selected IBM Personal Computers and the Personal System/2 family:
  - Multitasking
  - Up to four host sessions
  - Up to six DOS sessions
  - Up to two notepad sessions
- Expanded memory support (up to 2.25Mb) with IBM 2Mb Expanded Memory Adapter or IBM Personal System/2 80286 Expanded Memory Adapter/A
- Expanded Memory Specification support
- Virtual Disk support
- Windowing
- LAN support (Token-Ring and PC Network)
- Enhanced Connectivity Facilities support (SRPI)
- Additional display and graphics support
- Application Programming Interfaces (API) and High Level Language API (HLLAPI)
- Integrated host graphics (3270 PC)
- Host graphics (via GDDM-PCLK)
- Improved memory flexibility (over Version 1.0) in PS/2 and DOS session size and multiple Expanded Memory Specification sessions (Lotus®/Intel/Microsoft EMS)
- Support for the IBM 9370 Processor and the 3270 Communications Controller as Token-Ring gateways for host access, using IEEE/802.2 protocols
- Keyboard Definition Utility support for the Enhanced Keyboard when attached to the IBM PC XT and PC AT or to PS/2 Model 30, allowing users to move functions from one key to another to suit individual needs

### Systems supported

- PC XT, PC AT, 3270 PC, 3270 PC AT, PS/2 Models 30 through 80 386
- National Language Support

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## IBM 3270 PC High Level Language Application Program Interface (HLLAPI) Version 3.1

### Highlights

- HLLAPI Version 3.1 is enhanced to include C language and National Language Support (previously announced and supported by IBM 3270 Workstation Program Version 1.0)
- Supports the IBM 3270 Workstation Program Version 1.1

### Systems supported

PC XT, PC AT, 3270 PC, 3270 PC AT, PS/2 Models 30 through 80 386

## IBM PC 3270 Emulation Program Entry Level Version 1.2

### Highlights

- Provides 3278/3279 Emulation for accessing System/370 host applications
- Minimal memory required (approximately 26Kb)
- Dual task support
  - Simultaneous DOS program and host access
- Control unit terminal (CUT) mode attachment
- Entry Emulator High Level Language Application Program Interface (EEHLLAPI)
- Host graphics (via GDDM-PCLK)
- Enhanced Connectivity Facilities support
- National Language Support

### Systems supported

IBM PC, PC XT, XT Model 286, PC AT, all PS/2 models



## IBM PC 3270 Emulation Program Version 3.0

### Highlights

- Wide variety of connectivity options
  - Single station communications support: 3278/3279/3287 Emulation via SDLC, 3X74 (BSC or SDLC), or Token-Ring
  - Local/remote LAN gateway and network station support: SDLC, 3X74 (BSC or SDLC), Token-Ring, PC Network
- Dual-tasking and auto-key function
- Host graphics (via GDDM-PCLK)
- Enhanced Connectivity Facilities support
- Host-initiated print

### Systems supported

IBM PC, PC XT, XT Model 286, PC AT, all PS/2 models

## IBM 5520/Personal Computer Attachment Program Version 4.0

## IBM 5520 Personal System/2 Attachment Program Version 1.0

### Highlights

- Allow IBM personal computers to operate as online 5253 terminals connected to an IBM 5520 system
- Provide keystroke capability to switch quickly between DOS and 5520 system applications
- Provide 3270 Emulation access capabilities to an IBM System/370 host connected via the IBM 5520 system

### Systems supported

*5520/Personal Computer Attachment Program Version 4.0*  
IBM Portable PC, IBM PC, PC XT, XT Model 286, XT 370, PC AT, PC 3270, PS/2 Models 25, 30, 30 286

*5520 Personal System/2 Attachment Program Version 1.0*  
PS/2 Models 50 through 80 386

## IBM Enhanced 5250 Display Station Emulation Version 2.12

## Remote 5250 Emulation Program Version 2.0

### Highlights

- Allow IBM personal computers to operate as online 5250 terminals connected to an IBM System/36, System/38 or AS/400
- Provide "hot key" capability to switch quickly between DOS and System/36, System/38 or AS/400 applications
- Permit two host sessions to be run at the same time
- Allow host applications to be printed out at the personal computer workstation
- Support workstation printers through Table Driven Printer processing
- Remote 5250 Emulation provides 5250 Emulation access capabilities to an IBM System/36, System/38 or AS/400 by emulating the function of the IBM 5294 Remote Control Unit at speeds of up to 19,200bps (PS/2 Models 50 through 80 386)

### Systems supported

*IBM Enhanced 5250 Display Station Emulation Version 2.12*

IBM Portable PC, IBM PC, PC XT, XT Model 286, PC AT, PS/2 Models 25, 30, 30 286

*Remote 5250 Emulation Program Version 2.0*

IBM Portable PC, IBM PC, PC XT, XT Model 286, PC AT, all PS/2 models

**LAN adapters for the Personal System/2 family**

***Token-Ring Network***

- Token-Ring Network PC Adapter
- Token-Ring Network PC Adapter II
- Token-Ring Network Adapter II/A
- Token-Ring Network Trace and Performance Adapter II
- Token-Ring Network Trace and Performance Adapter II/A

***PC Network Broadband***

- PC Network Adapter II
- PC Network Adapter II Frequency 2
- PC Network Adapter II Frequency 3
- PC Network Adapter II/A
- PC Network Adapter II/A Frequency 2
- PC Network Adapter II/A Frequency 3

***PC Network Baseband***

- PC Network Baseband Adapter
- PC Network Baseband Adapter/A

**IBM Local Area Network Program  
Version 1.3**

**Highlights**

- Provides resource sharing of disks, files and printers for interconnected workstations in the DOS environment on the IBM Token-Ring and PC Networks
- Supports increased NETBIOS sessions (up to 254, depending on the LAN adapter and device driver)
- New levels of security, including user log-on with optional encrypted password
- Extended Services provide enhancements to LAN resource definition and control, including a new application selector panel for customizing the user's view of the system
- Requester function supported by OS/2 LAN Server Program
- Provides remote IPL support of DOS to appropriately configured PS/2 and IBM PC systems

### IBM Operating System/2 Local Area Network Server Version 1.0

#### Highlights

- Takes advantage of OS/2 Extended Edition functions
- Supports IBM Token-Ring Network and PC Network NETBIOS APPC/PC and IEEE 802.2 programming interfaces
- Allows resource sharing for files, printers and serial communication devices
- Allows simultaneous multiple network requests for maximum network efficiency
- Provides multiple security services to protect resources
- Offers extensive printer management capabilities with concurrent support for up to eight printers
- Remote program execution permits network users to run programs on the server machine

### IBM Local Area Network Manager Program Version 2.0

#### Highlights

- Manages an IBM Token-Ring Network or a broadband IBM PC Network
- Utilizes OS/2 Extended Edition Version 1.1 Communications Manager function and supports the IBM Token-Ring Network and the IBM PC Network Broadband
- Monitors the network for station or media failure and configuration changes and notifies the operator of errors that require immediate attention (alerts)
- Logs network error and stores information to disk for further analysis and reporting
- Provides easy-to-use menus and operator commands to facilitate problem determination and error recovery

### IBM PC 3270 Emulation LAN Management Program Version 1.0

#### Highlights

- Provides small and remote LAN support for IBM Token-Ring and PC Networks
- Operates as resident code with the IBM 3270 Emulation Program
- Requires no additional dedicated resources
- Provides automatic alert forwarding to NetView host

### IBM Token-Ring Network Bridge Program Version 1.1

#### Highlights

- Connects two rings into a single logical network
- With multiple Bridge Programs, allows information to flow through seven levels of bridges and eight rings
- Passes ring and bridge error information, reports of configuration changes, and error reports from attached rings to the IBM LAN Manager Version 1.0
- Allows the LAN Manager to set parameter, query station and remove adapters on attached rings

### Customized Operation Services—Site Management Services

#### Highlights

- Modular offerings provide physical environment solutions
- Cabling module offers a wide array of services to help LAN users design, install and/or verify IBM cabling configurations
- Includes installation and verification of IBM products designated as Customer Set-up plus selected non-IBM products



## IBM Personal System/2 Graphics Workstation Program

### Highlights

- Provides migration for applications from the IBM PC AT G and GX with Graphics Control Program Version 3.1 to PS/2 Models 50 through 80 386 under DOS 3.3 and DOS 4.0
- Up to four concurrent interactive GDDM host graphics sessions and two notepad sessions
- Support for a range of graphics devices, including RS-232 plotters, printers and a PS/2 Mouse
- Virtual Disk support
- Graphics procedure interface supported by five language bindings (Assembler, BASIC, FORTRAN, Pascal, C)
- 12-function HLLAPI subset support
- Enhanced Connectivity Facilities support (SRPI)
- LAN support (Token-Ring)
- Windowing
- Supports 9Mb extended memory
- Requires use of IBM Display and 8514/A Display Adapter

## Graphics Development Toolkit Version 1.2

### Highlights

- Contains application programming interface for a device-independent graphics environment
- Ten additional Virtual Device Interface (VDI) device drivers
  - PS/2 integrated display adapter and PS/2 Display Adapter—640 x 480, 16 colors
  - PS/2 integrated display adapter and PS/2 Display Adapter—640 x 480, 2 colors
  - PS/2 integrated display adapter and PS/2 Display Adapter—320 x 200, 256 colors
  - PS/2 Model 30—640 x 480, 2 colors; 320 x 200, 256 colors
  - PS/2 Model 30 286—640 x 480, 16 colors; 320 x 200, 256 colors
  - Quietwriter III
  - 6180 Color Plotter
  - PS/2 Mouse
- Packaged with 5.25-inch and 3.5-inch diskettes

## IBM Operating System/2 Graphics Development Toolkit

### Highlights

- Powerful, flexible productivity tool for application developers writing graphics programs for OS/2
- Operates in and supports VDI application development for OS/2's multitasking and 16Mb environment
- Software font support
- Additional vector drawing functions
- Improved text handling
- Device independence at source code level
- Minimal conversion effort for existing VDI applications

## GDDM-PCLK Version 1.1

### Highlights

- Together with the host GDDM-PCLK feature, enables a GDDM host application to link to the IBM PC, 3270 PC or PS/2 with the new or existing 3270 terminal emulators as a graphics terminal
- Supports most GDDM Version 2 functions, including windowing and image
- Display, print and plot to attached devices
- Simple transfer of Picture Interchange Format (PIF) to local file
- Interactive Chart Utility (ICU) and other GDDM applications run without change
- Requires a 3270 terminal emulator (IBM PC 3270 Emulation Program Entry Level Version 1.2, 3270 Display Station Emulation Program Version 3.0, or 3270 Workstation Program Version 1.1)

### TextReader™

#### Highlights

- Optical character recognition (OCR) program
- Reads typewritten or printed page
- Substitute mode for unrecognized characters
- Font tuning for font variation
- Font recognition:
  - 10-pitch—Courier, Pica, Prestige Pica, Orator, Gothic Bold, Gothic Text, Serif Text
  - 12-pitch—Courier, Elite, Prestige Elite, Letter Gothic, Gothic Bold, Gothic Text, Serif Text, OCR-B
  - Proportional—Roman, Title, Boldface
- ASCII and RFTDA file output
- Supports 3117 and 3118 Scanners and PageScanner
- Runs in Windows 2.03 environment

### ImagEdit™ Version 2.0

#### Highlights

- Image scanning and editing
- Partial page scanning
- Pel-by-pel editing, flipping and rotating functions
- Cut-and-paste and paint-and-draw functions
- Text annotation
- Enlarge/reduce, lightness/darkness and contrast controls
- TIFF (Tag Image File Format) or IMDS (Image Data Stream) output files
- Zoom/scroll viewing
- Supports 3117 and 3118 Scanners, PageScanner and other equipment manufacturers' scanners
- Runs in Windows 2.03 environment

™ TextReader and ImagEdit are trademarks of International Business Machines Corporation.

## Product summary

#### Highlights

The Personal System/2 family, with its wide range of features and functions, can meet your current needs and can support your plans for tomorrow.

Here are some of the advantages these systems offer:

- Help in protecting your investment in IBM personal computing products
- Integration of 3270 and PC functions
- Micro Channel architecture for fast, efficient data flow and concurrent operations
- High levels of capability and function
- Platforms for strategic growth
- Total systems solutions

## Personal System/2

### Model 25

- Price/performance (vs. IBM PC)
  - 2.5 times faster
  - MCGA enhanced graphics
  - Reduced footprint
  - Integrated features
  - Integrated display and system unit
- Operating system
  - DOS
- Application environments
  - Simple spreadsheets
  - Word processing
  - Education-Collegiate package
  - Entry-level LAN/host workstation

### Model 30

- Price/performance (vs. Model 25)
  - MCGA graphics
  - VGA-level function via adapter card
  - Display flexibility
  - One additional expansion slot
- Operating system
  - DOS
- Application environments
  - Simple spreadsheets
  - Word processing
  - Entry-level LAN/host workstation

### Model 30 286

- Price/performance (vs. Model 30)
  - VGA graphics
  - 80286 processor
  - Memory expandability: 0.5Mb to 4Mb on system board; up to 16Mb total system memory
  - Larger capacity diskette drives
- Operating system
  - DOS
  - Operating System/2 Standard Edition Version 1.1 and Extended Edition Version 1.1 (entry configurations only)
- Application environments
  - Simple spreadsheets
  - Word processing
  - LAN/host workstation

### Models 50 and 50 Z

- Price/performance (vs. Model 30 286)
  - Micro Channel
  - Larger capacity/faster access disk drives
  - Multifunction terminal emulator
  - 0 wait state on 50 Z (vs. 1 on Model 50)
- Operating systems
  - DOS
  - Operating System/2
- Application environments
  - Spreadsheets
  - Text processing
  - Concurrent communication sessions
  - Small business/commercial applications

### Model 60

- Price/performance (vs. Models 50 and 50 Z)
  - Larger fixed disk
  - Additional fixed disk expansion
  - Four additional expansion slots
- Operating systems
  - DOS
  - Operating System/2
- Application environments
  - Large spreadsheets
  - Desktop publishing
  - Small/medium network LAN server
  - Multiuser system/host
  - Integrated commercial/industry applications



## Personal System/2 positioning

(continued)

### Model 70 386

- Price/performance (vs. Model 60)
  - 80386 Processor
  - Expanded system board memory capacity
  - Faster throughput
- Operating systems
  - DOS
  - Operating System/2
  - AIX Personal System/2
- Application environments
  - Processor-intensive spreadsheets
  - Desktop publishing
  - Concurrent communication sessions
  - Multiuser system/host
  - Small business/commercial applications
  - Power users

### Model 80 386

- Price/performance (vs. Model 70 386)
  - Larger fixed disk
  - Additional fixed disk expansion
  - Four additional expansion slots
- Operating systems
  - DOS
  - Operating System/2
  - AIX Personal System/2
- Application environments
  - Processor-intensive spreadsheets
  - Composite desktop publishing
  - Multiuser system/host
  - LAN Server—medium/large networks
  - Integrated commercial/industry applications
  - Power users



# Quick reference charts

## PS/2 model comparisons

Personal System/2 Model								
	25	30	30 286	50	50 Z	60	70 386	80 386
<b>Processor</b>								
Type	8086	8086	80286	80286	80286	80286	80386	80386
Speed (MHz)	8	8	10	10	10	10	16 (-E61) 20 (-121) 25 (-A21)	16 (-041, -071) 20 (-111, -311)
<b>Wait states</b>	0	0	1	1	0	1	0-2 <sup>a</sup>	1 (-041, -071) 0-2 (-111, -311)
<b>User memory (RAM)<sup>b</sup></b>								
Standard-maximum on system board	512Kb-640Kb	640Kb	0.5Mb-4Mb	1Mb	1Mb-2Mb	1Mb	1Mb-6Mb (-E61) 2Mb-6Mb (-121) 2Mb-8Mb (-A21) 16Mb	1Mb-2Mb (-041) 2Mb (-071) 2Mb-4Mb (-111, -311)
System maximum (addressable)	640Kb	640Kb	16Mb	16Mb	16Mb	16Mb	16Mb	16Mb
<b>Integrated functions</b>								
Parallel/serial/pointing device ports	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Graphics port	MCGA	MCGA	VGA	VGA	VGA	VGA	VGA	VGA
Disk/diskette controllers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clock/calendar	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security password	No	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>Expansion slots (available)</b>	2 <sup>c</sup>	3	3	3	3	7	3	7
<b>Operating systems</b>								
DOS 3.3 and DOS 4.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operating System/2	No	No	Yes <sup>d</sup>	Yes	Yes	Yes	Yes	Yes
AIX Personal System/2	No	No	No	No	No	No	Yes	Yes
<b>Diskette drives, 3.5-inch</b>								
Capacity	720Kb	720Kb	1.44Mb	1.44Mb	1.44Mb	1.44Mb	1.44Mb	1.44Mb
Quantity standard	1	2 (-002) 1 (-021)	1	1	1	1	1	1
<b>Fixed disk storage</b>								
Standard-maximum (Mb)	0-20	20 (-021)	20 (-E21) <sup>e</sup>	20-60	30-60	44-88 (-041) 70-185 (-071)	60 (-E61) 120 (-121, -A21)	44-88 (-041) 70-384 (-071) 115-429 (-111) 314-628 (-311)

<sup>a</sup>Except -A21 with 64Kb of memory cache.

<sup>b</sup>128Kb of this memory is reserved for hardware system use on Models 70 386, 80-111 and -311.

<sup>c</sup>One full-size, one 8-inch.

<sup>d</sup>Standard or Extended Editions 1.1 (entry configurations only).

<sup>e</sup>Also available as Model 8530-E01 without a fixed disk through IBM Authorized Dealers only.



# IBM memory expansion table

Product name	Part #	FC #	Memory capacity		Module kit used		Personal System/2 Model							
			Min.	Max.	Part #	Capacity	25	30	30 286	50	50 Z	60	70 386	80 386
Expansion Cards														
PS/2 2-8Mb 80386	6450605	5211	2Mb	8Mb	6450603	1Mb								
Memory Expansion Option					6450604	2Mb								
PS/2 80386	6450367	3019	2Mb	6Mb	6450372	2Mb								
Memory Expansion Option														
PS/2 0-8Mb Expansion	1497259	7259	0Mb	8Mb	30F5348	0.5Mb								
Memory Adapter/A					30F5360	2Mb								
PS/2 80286	6450344	3006	0.5Mb	2Mb	6450345	0.5Mb								
Memory Expansion Option														
PS/2 Multifunction Adapter	30F5364	8635	0Mb	12Mb	30F5348	0.5Mb								
2Mb Expanded Memory Adapter	2685193	3905	2Mb		30F5360	2Mb								
System Board Kits														
PS/2 System Board	6450375	3009	1Mb											
Memory Expansion Kit														-041
PS/2 System Board	6450379	8722	2Mb											
Memory Expansion Kit														-111, -311
PS/2 2Mb Memory Module Kit-80ns	6450608	5214	2Mb											-A21
PS/2 1Mb Memory Module Kit	6450603	5212	1Mb											-E61, -121
PS/2 2Mb Memory Module Kit	6450604	5213	2Mb											-E61, -121
PS/2 0.5Mb Memory Module Kit	30F5348	3397	0.5Mb											
PS/2 2Mb Memory Module Kit	30F5360	7833	2Mb											
PS/2 Model 25 System Board Memory Expansion	78X8955	4105	128Kb											

## PS/2 enhancements—fixed disk storage expansion

			Personal System/2 Model							
	Access time	Part #	25	30	30 286	50	50 Z	60	70 386	80 386
3.5-inch fixed disk										
20Mb*	80ns	78X8958	•							
20Mb**	80ns	27F4130	•							
20Mb**	80ns	27F4236			-E01					
60Mb*	27ns	6450606				•	-031			
5.25-inch fixed disk										
44Mb***	40ns	6450354						-041		-041
70Mb***	30ns	6450355						-071		-071, -111, -311
115Mb***	28ns	6450377						-071		-071, -111, -311
314Mb***	23ns	6450381								-071, -111, -311

\*On-board controller, expansion slot not required.

\*\*Comes with adapter card which requires use of 8" slot.

\*\*\*Interfaces to existing controller in PS/2; expansion slot not required.

## PS/2 enhancement products

Device feature	Personal System/2 Model							
	25	30	30 286	50	50 Z	60	70 386	80 386
8087 Math Co-Processor	•	•						
80287 Math Co-Processor			•	•	•	•		•
80387 Math Co-Processor							•	
128Kb Memory Expansion	•							
2Mb Expanded Memory Adapter	•	•						
80286 Memory Expansion				•	•	•		
Multifunction Adapter			•		•	•		
0-8Mb Expanded Memory Adapter/A				•	•	•		
80386 Memory Expansion							•	•
2-8Mb 80386 Memory Expansion							•	•
3.5-inch 720Kb Diskette Drive	•							
3.5-inch 1.44Mb Diskette Drive			•	•	•	•	•	•
3.5-inch 20Mb Fixed Disk	•		•					
5.25-inch 44Mb Fixed Disk						•		•
3.5-inch 60Mb Fixed Disk				•				
5.25-inch 70Mb Fixed Disk						•		•
5.25-inch 115Mb Fixed Disk						•		•
5.25-inch 314Mb Fixed Disk						•		•
5.25" Internal Diskette Drive						•		•
5.25" External Diskette Drive (360Kb)	•	•	•	•	•	•	•	•
5.25" External Diskette Drive (1.2Mb)				•	•	•	•	•
PS/2 Data Migration Facility	•	•	•	•	•	•	•	•
6157 Tape Drive Adapter		•	•	•	•	•	•	•
Internal Tape Backup Unit				•	•	•	•	•
8503 Monochrome Display		•	•	•	•	•	•	•
8507 Monochrome Display			•	•	•	•	•	•
8512 Color Display		•	•	•	•	•	•	•
8513 Color Display		•	•	•	•	•	•	•
8514 Color Display		•	•	•	•	•	•	•
Display Adapter								
Display Adapter 8514/A				•	•	•	•	•
PS/2 Mouse	•	•	•	•	•	•	•	•
PC Music Feature	•	•	•					
PS/2 Speech Adapter	•	•	•					
Game Control Adapter	•	•	•					
Serial/Parallel Adapter	•	•	•					
300/1200 Internal Modem/A				•	•	•	•	•
Multi-Protocol Adapter/A				•	•	•	•	•
Dual Async Adapter/A				•	•	•	•	•
BSC Communications Adapter	•	•						
SDLC Communications Adapter	•	•	•					
5250 Emulation Adapter	•	•	•					
5250 Emulation Adapter/A				•	•	•	•	•
3270 Emulation Adapter	•	•	•					
3270 Connection				•	•	•	•	•
Display Station Emulation Adapter	•	•	•					
Display Station Emulation Adapter/A				•	•	•	•	•
PC Network Adapter II	•	•	•					
PC Network Adapter II/A				•	•	•	•	•
PC Network Baseband Adapter	•	•	•					
PC Network Baseband Adapter/A				•	•	•	•	•
PC Network Adapter II Frequency 2	•	•						
PC Network Adapter II Frequency 3	•	•						
PC Network Adapter II/A Frequency 2				•	•	•	•	•
PC Network Adapter II/A Frequency 3				•	•	•	•	•
Token-Ring Network PC Adapter	•	•	•					
Token-Ring Network PC Adapter II	•	•	•					
Token-Ring Network Adapter/A				•	•	•	•	•
Token-Ring Network Trace and Performance Adapter II	•	•	•					
Token-Ring Network Trace and Performance Adapter II/A				•	•	•	•	•

Additional cards and options are available—consult your IBM marketing representative or IBM Authorized Dealer.

## PS/2 performance and capacity improvements over PS/2 and IBM PC models

The table below provides approximate enhanced performance and capacity ratios of PS/2 models over their IBM Personal Computer or Personal System/2 predecessors. The "x" in table entries means "times higher" for performance ratios; "times as much" in the case of standard memory and diskette and fixed disk capacities.

Personal System/2	IBM predecessor	Performance ratio*	Standard memory	Standard diskette capacity	Standard fixed disk capacity
Model 80 386 (20 MHz)	PC AT (339)	up to 5.9x	4.0x	1.2x	3.8-10.5x
Model 80 386 (16 MHz)	PC AT (339)	up to 4.9x	2.0-4.0x	1.2x	1.5-2.3x
Model 70 386 (25 MHz)	PC AT (339)	up to 8.4x	4.0x	1.2x	4.0x
Model 70 386 (20 MHz)	PC AT (339)	up to 5.7x	4.0x	1.2x	4.0x
Model 60 (10 MHz)	PC AT (339)	up to 2.0x	2.0x	1.2x	1.5-2.3x
Model 50 Z (10 MHz)	PC AT (339)	up to 3.5x	2.0x	1.2x	1.0-2.0x
Model 50 (10 MHz)	PC AT (339)	up to 2.0x	2.0x	1.2x	0.7x
Model 30 286 (10 MHz)	PS/2 (30)	up to 2.0x	0.8x	2.0x	1.0x
Model 30 (8 MHz)	PC XT (089)	up to 2.5x**	1.0x	2.0x	1.0x
Model 25 (8 MHz)	PC	up to 2.4x**	2.5x	2.0x	N/A

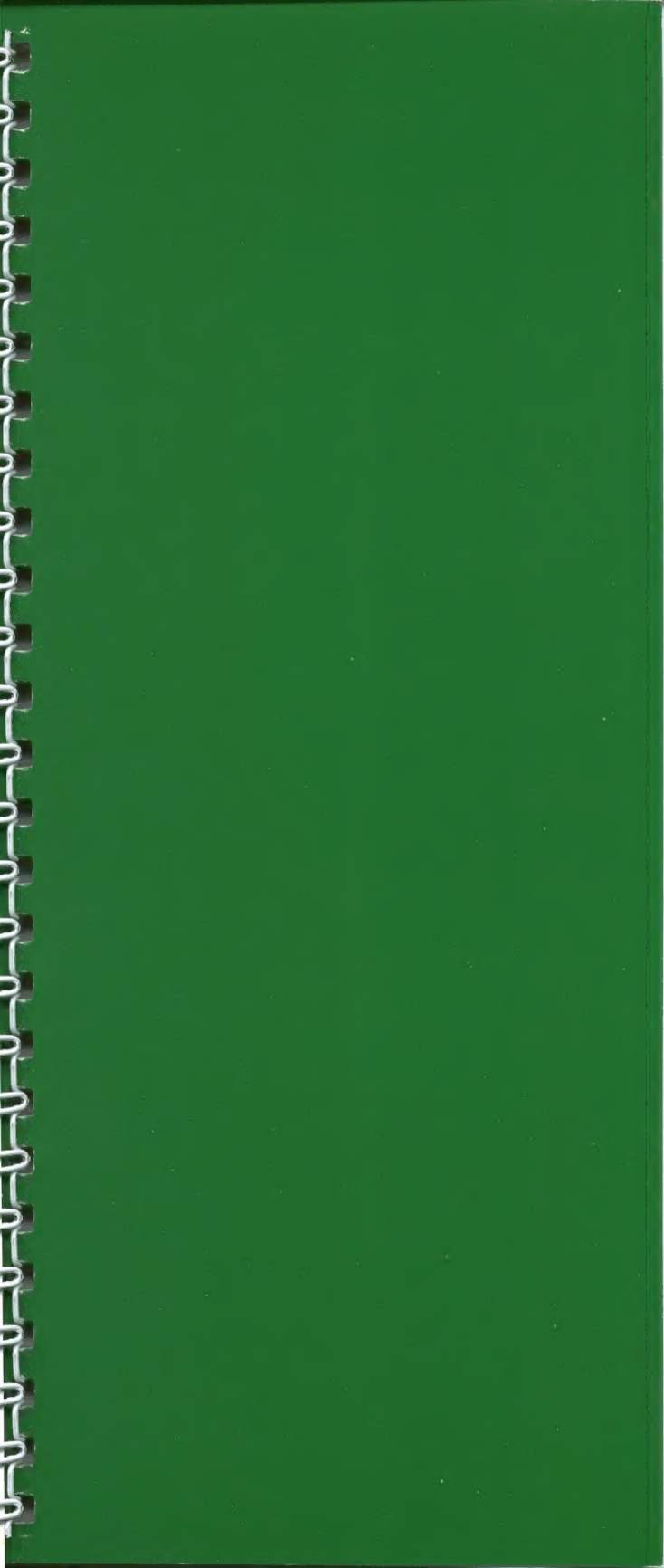
\* These tests were conducted independently by National Software Testing Laboratory. The results were based on the execution time for six jobs: text (word processing), graphics, spreadsheet, business applications, engineering/scientific computations, and data base applications. This information is based on the testing described in the PS/2 performance guide. Your results may vary. For details, contact your IBM marketing representative or an IBM Authorized Dealer.

\*\* Tests for Models 25 and 30 were conducted by IBM.

## Communications software comparisons

	3270 Entry Level	3270 Emulation	3270 Workstation	PS/2 Graphics Workstation
	V. 1.2	V. 3.0	V. 1.1	
3278/3279 emulation	•	•	•	•
3287 printer emulation		•		
3274/3174				
coax attachment	•	•	•	•
3174/3720/3725/9370				
Token-Ring gateway		•	•	
PC LAN gateway		•		
LAN compatible	•	•	•	•
SDLC line attachment		•		
Number of				
host display sessions	1	1	4	4
Number of PC sessions	1	1	6	1
Number of				
notepad sessions			2	2
Graphics procedure				
I/F support				•
HLLAPI	entry		•	•
Presentation space API (ECF) SRPI	•	subset	•	•
Concurrent processing		•	•	•
XMA support			•	N/A
<b>Host graphics:</b>				
Full				•
GDDM-PCLK	•	•	•	N/A
Integrated			3270 PC	
Graphics devices (RS-232 plotters, printers, mouse)				•
IBM PC, XT/286	•	•		
PC XT, PC AT	•	•	•	
Model 25	•	•		
Models 30 and 30 286	•	•	•	
Models 50 through 80 386	•	•	•	•
3270 PC, 3270 PC AT			•	







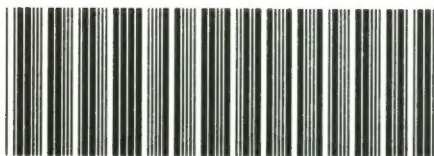
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